

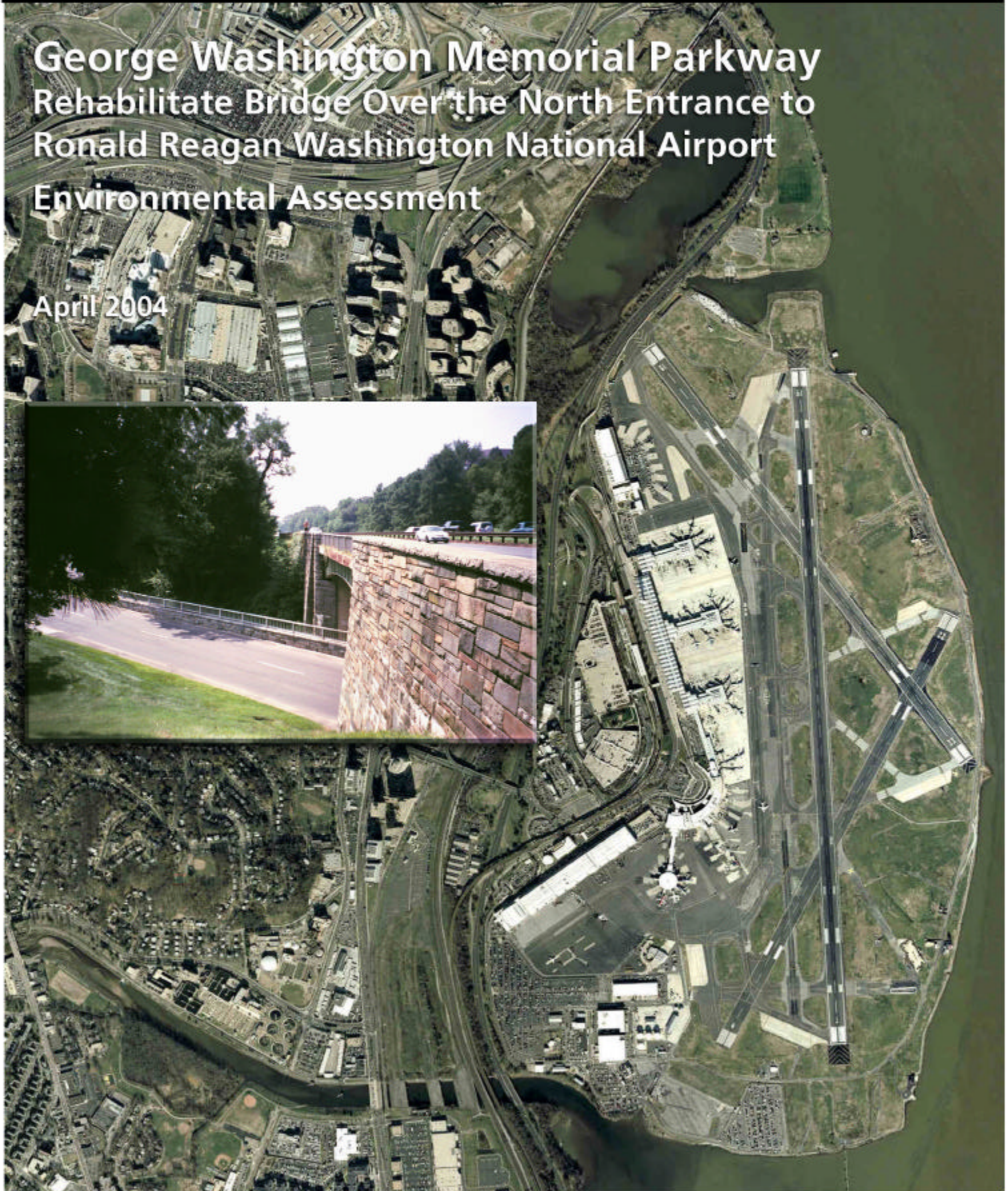
National Park Service
U.S. Department of the Interior

George Washington Memorial Parkway
Arlington County, Virginia



George Washington Memorial Parkway Rehabilitate Bridge Over the North Entrance to Ronald Reagan Washington National Airport Environmental Assessment

April 2004



ENVIRONMENTAL ASSESSMENT

**REHABILITATE BRIDGE OVER THE NORTH ENTRANCE
TO RONALD REAGAN WASHINGTON NATIONAL AIRPORT**

April 2004

GEORGE WASHINGTON MEMORIAL PARKWAY
Arlington County, Virginia

United States Department of the Interior • National Park Service

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**U.S. DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE**

ENVIRONMENTAL ASSESSMENT

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**GEORGE WASHINGTON MEMORIAL PARKWAY
ARLINGTON COUNTY, VIRGINIA**

Summary

The National Park Service in cooperation with the Federal Highway Administration proposes to rehabilitate the bridge on the George Washington Memorial Parkway over the north entrance to Ronald Reagan Washington National Airport. The major project components include replacing the bridge decking, replacing the guardrails and railings, and realignment of the Mount Vernon Trail away from the parkway by either constructing a shoulder extension (effectively widening the bridge by 15 feet) or a new pedestrian bridge.

This Environmental Assessment analyzes the potential impacts of three alternatives (a No-Action Alternative and two action alternatives) on the human environment in accordance with the National Environmental Policy Act of 1969. Under the No-Action Alternative, the National Park Service would continue management actions that would include minimum rehabilitation of the bridge to maintain the existing integrity and character of the historic structure. Alternative B (the Preferred Alternative) would be the replacement of the bridge decking, replacement of guardrails and railings, and construction of a shoulder extension (effectively widening the bridge by 15 feet) to realign the Mount Vernon Trail. Alternative C would include the replacement of the bridge decking, replacement of guardrails and railings, and construction of a new pedestrian bridge parallel to the parkway.

The No-Action Alternative and the two action alternatives would either have no or negligible impacts on archeology; water resources; air quality; soundscape management; lightscape management; Indian Trust resources; ethnographic resources; topography, geology and soils; agricultural lands, prime and unique farmlands; wildlife; rare, threatened, endangered, candidate species, and species of special concern; socio-economic environment; land use; environmental justice; community facilities and services; and infrastructure.

Under the No-Action Alternative, minor, long-term, adverse impact on aesthetics and visual resources would occur. A minor, adverse impact on the visitor experience would occur. Similarly, moderate, long-term, adverse impacts to public safety would occur. The No-Action Alternative would have no or negligible impacts on historic resources, cultural landscapes, vegetation, and transportation.

Under Alternative B (the Preferred Alternative), there would be minor, long-term beneficial impacts on historic structures/sites, aesthetics and visual resources, and visitor use and experience. Alternative B would have a moderate, long-term, beneficial impact on health and safety. Lastly, a minor, long-term beneficial impact would occur to transportation.

Under Alternative C, a minor, long-term, beneficial impact would occur to aesthetics and visual resources and visitor use and experience. Alternative C would have a moderate, long-term, beneficial impact on health and safety. Lastly, a minor, long-term beneficial impact would occur to transportation. Alternative

C would have moderate, long-term, adverse impacts on historic resources. A minor, long-term, adverse impact on the cultural landscapes would occur.

Alternatives B and C would both have short-term, adverse impacts during construction. Adverse impacts would occur to health and safety, vegetation, transportation, and the visitor experience. With mitigation, the short-term, adverse impacts to health and safety, vegetation, transportation, and the visitor experience would be minor.

Note to Reviewers and Respondents

If you wish to comment on the Environmental Assessment, you may mail comments to the name and address below by May 20, 2004. Our practice is to make comments, including names and home addresses of respondents, available for public review during regular business hours. Individual respondents may request that we withhold their home address from the record, which we will honor to the extent allowable by law. If you wish us to withhold your name and/or address, you must state this prominently at the beginning of your comment. We will make all submissions from organizations or businesses and from individuals identifying themselves as representatives or officials of organizations or businesses available for public inspection in their entirety.

Please address all comments to:

Audrey Calhoun, Superintendent
George Washington Memorial Parkway
Turkey Run Park
McLean, Virginia 22101

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PURPOSE OF AND NEED FOR ACTION

The National Park Service, in cooperation with the Federal Highway Administration, proposes to rehabilitate the historic bridge over the north entrance to Ronald Reagan Washington National Airport on the George Washington Memorial Parkway (See Figure 1). The project includes the replacement of the bridge decking, repair of guardrails and railings, and realignment of the Mount Vernon Trail further away from the highway by either a bridge extension or a new trail bridge. This Environmental Assessment analyzes the potential environmental impacts that would result from the implementation of these actions. This Environmental Assessment has been prepared in accordance with the National Environmental Policy Act of 1969, the regulations of the Council on Environmental Quality for implementing the Act (40 Code of Federal Regulations 1500-1508), the National Park Service Director's Order # 12 (*Conservation Planning, Environmental Impact Analysis, and Decision-making*) (NPS, 2001) and the National Historic Preservation Act of 1966 (as amended).

PURPOSE OF THE ACTION

The purpose of the project is to rehabilitate the historic bridge over the north entrance to Ronald Reagan Washington National Airport to sustain heavy vehicular traffic and support safe travel on the George Washington Memorial Parkway, to protect and maintain the historic integrity of the bridge by rehabilitating certain character-defining features of the bridge, such as the stone facing on the abutment wingwalls, and to provide a safer route for pedestrians and bicyclists using the Mount Vernon Trail.

NEED FOR THE ACTION

The bridge requires rehabilitation and major repairs because of heavy vehicular usage and normal deterioration typical of a bridge that is more than 60 years old. Specifically, the bridge concrete deck has experienced extensive deterioration (widespread minor spalling with exposed rebar and cracking with efflorescence on the underside of the deck). The guardrails are below the recommended height of 2 to 6 feet for traffic barriers and several of the guardrail posts are badly spalled. The guardrails and the metal bridge railings do not meet crash-test standards. Rehabilitation is needed to restore and maintain the existing historic integrity of the bridge as well as to improve driving conditions for motorists using the George Washington Memorial Parkway. The realignment of the Mount Vernon Trail is needed because the trail is approximately 3 feet away from the roadway at its closest point on the bridge. Also, there is a mountable curb adjacent to the trail that offers no protection to trail users from errant vehicular traffic. The realignment of the trail away from the roadway is necessary to provide pedestrians and bicyclists a safer route away from vehicular traffic.



Figure 1: Site vicinity map

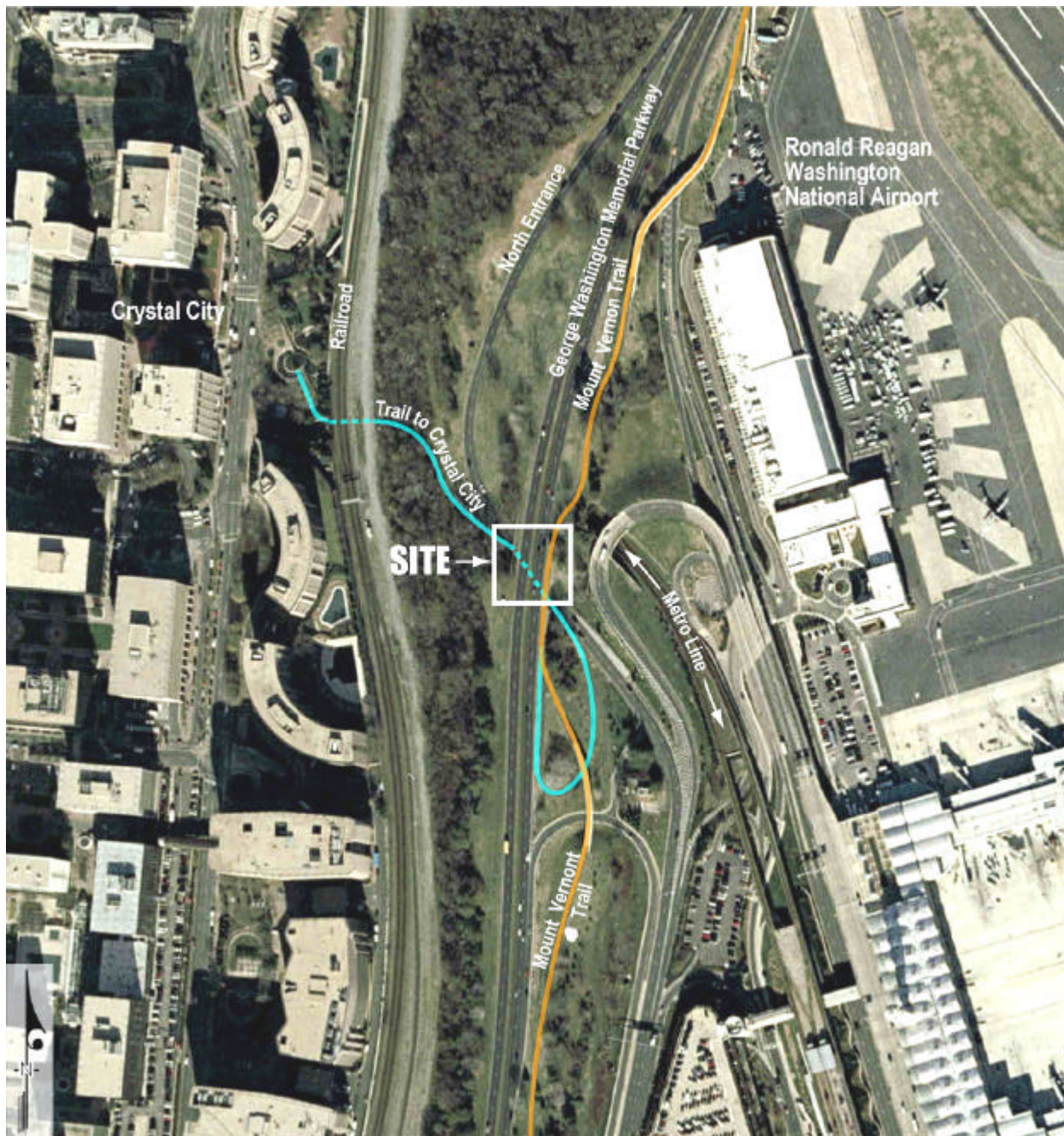
PURPOSE AND SIGNIFICANCE OF THE PARKWAY AND BRIDGE

The George Washington Memorial Parkway was developed as a memorial to George Washington. The George Washington Memorial Parkway was designated as a National Park Unit in 1933. The first section, called the Mount Vernon Memorial Highway, was completed in 1932 to commemorate the bicentennial of George Washington's birth. Today, the George Washington Memorial Parkway extends from the Capital Beltway (Interstate 495) on the northern end to Mount Vernon in the City of Alexandria, Virginia on the southern end. The parkway is a major transportation artery in Northern Virginia providing access to Washington, DC, Arlington County, Fairfax County, and the City of Alexandria. As a result, many local residents consider the parkway a commuter route; however, the Parkway offers travelers much more than convenience. The parkway is a scenic, historic, and recreational setting away from the nearby urban pressures of metropolitan Washington, DC. Set parallel to the scenic Potomac River and across from Washington, DC, the parkway has remarkable vistas of the Potomac River, Washington Monument, Lincoln Memorial, and Jefferson Memorial. The Parkway was visited by more than 7 million people in 2002 and supports many recreation, educational, and celebratory events such as the Independence Day (the Fourth of July) celebration.

The Mount Vernon Memorial Highway is the original portion of the George Washington Memorial Parkway that links the southeastern end of Arlington Memorial Bridge on Columbia Island, Washington, DC, with Mount Vernon in Fairfax County, Virginia. The route roughly parallels the Potomac River. The highway was designed and landscaped to maximize scenic, aesthetics, and commemorative qualities and retains much of its intended character. The Mount Vernon Memorial Highway was listed on the National Register of Historic Places in 1981. The National Park Service constructed the Mount Vernon Trail in 1973. The 18.5-mile trail parallels the parkway and the Potomac River and extends from Mount Vernon, the home of George Washington, to Theodore Roosevelt Island in the Potomac River near the Lincoln Memorial.

The bridge over the north entrance to the airport is historic and a contributing element to the parkway's National Register nomination (NPS GWMP, 1981). The bridge is not an original feature of the Mount Vernon Memorial Highway. The bridge was constructed in 1941 when the Mount Vernon Memorial Highway was realigned to accommodate the development of National Airport. The bridge's stone face on the abutment wingwalls still maintains stylistic elements of the original construction (NPS GWMP, 2002).

Figure 2 shows the project area in relation to the George Washington Memorial Parkway, Mount Vernon Trail, trail to Crystal City, Ronald Reagan Washington National Airport, and other surrounding features.



Source: Aerials Express, 2003.

Figure 2. 2003 aerial photograph of project area

PROJECT BACKGROUND AND PLANNING

A number of engineering, traffic, and safety studies have been completed for the George Washington Memorial Parkway. The early studies include:

- *Engineering Study Report for the George Washington Memorial Parkway* (Mount Vernon Memorial Highway portion), prepared by the Federal Highway Administration, November 1981
- *George Washington Memorial Parkway Traffic Engineering and Safety Improvement Study*, prepared by Bellomo-McGee, Inc. September 1985
- *George Washington Memorial Parkway Columbia Island Trail and Roadway Study*, prepared by Bellomo-McGee, Inc. September 1986
- *Engineering Study for the George Washington Memorial Parkway*, prepared by the Federal Highway Administration, May 1989

The latest comprehensive study was conducted in August 1998. The National Park Service Highway Engineer of the Field Operations Technical Support Center Highway Operations commissioned a consultant to complete a traffic safety study for the George Washington Memorial Parkway (Peccia, 1998). Some of the key points of this study as it relates to the bridge over the north entrance are:

- The southbound north entrance to the airport is identified as one of the top 24 highest accident area on the parkway (ranked 17th with 24 total accidents between 1994 and 1996 along the parkway). The northbound entrance is not identified in this report.
- The heaviest traffic volumes are the section of the George Washington Memorial Parkway between Ronald Reagan Washington National Airport and the Arlington Memorial Bridge.
- The worst pavement conditions along the parkway existed from the railroad bridge to south of Ronald Reagan Washington National Airport.

The Federal Highway Administration Federal Lands Highway Division provides highway and bridge design, construction, and inspection services for the National Park Service nationwide (FHWA, 1999). As part of this program, the Federal Lands Highway Division performs bridge inspections on an annual basis. The project scoping report completed by the National Park Service included the bridge inspection report from 1997. For this study, an inspection report dated April 29, 1999 was used for background and bridge condition. In both reports, the inspection team determined that the bridge was in need of rehabilitation because of the deteriorating conditions of the bridge decking resulting from high traffic volumes and the age of the structure.

SCOPING

In August 2000, the National Park Service completed a design scoping report, which identified the corrective actions needed for the bridge with a project description and preliminary cost estimates (FWHA, 2000). Also at that time, different alternatives were evaluated for the project. On

June 24, 2002, the National Park Service team completed an Environmental Screening Form pursuant to Director's Order #12, which identified potential issues associated with the project and the need for further investigation and impact analysis. No formal external agency or public scoping was conducted for the project; however, the National Park Service prepared an Assessment of Effect when alternative designs were formulated and solicited comments and concurrence from the Virginia Department of Historic Resources. A copy of the letter can be found in Appendix B. In this case, a "no adverse determination" finding was submitted for review. The National Park Service did not receive a response from the Virginia Department of Historic Resources within the 30-day specified review time. Therefore, according to 36CFR800(c)(1), "Failure of the State Historic Preservation Office/Tribal Historic Preservation Office to Respond within 30 days of receipt of findings shall be considered agreement of the State Historic Preservation Office/Tribal Historic Preservation Office with the finding."

A project team meeting was conducted on August 21, 2003 to initiate the environmental assessment study. At this meeting, the team discussed the project background and existing site conditions, potential issues, feasible alternatives and potential impacts.

ISSUES AND IMPACT TOPICS

The National Park Service staff completed an Environmental Screening Form that identifies potential issues and impact topics that require additional investigation to address the requirements of the National Environmental Policy Act of 1969 and Director's Order # 12 (NPS, 2001). These issues were identified from previous park planning efforts, input from various interested public groups and individuals, and input from local, state and federal agencies.

ISSUES

Maintaining the Historic Integrity of the Cultural Landscape and Historic Resources. The bridge over the National Airport North Entrance was built in 1941. The structure is a contributing element to the George Washington Memorial Parkway's listing on the National Register of Historic Places. The design and construction must consider potential impacts to the cultural landscape and historic resources. These resources include the bridge as well as other nearby resources contributing to the cultural landscape of the George Washington Memorial Parkway. The rehabilitation of the historic bridge needs to be conducted in a manner that is consistent with the *Secretary of Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Restoring, and Reconstructing Historic Buildings* and the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes*.

Traffic and Access to Ronald Reagan Washington National Airport. The George Washington Memorial Parkway is an integral part of the transportation system in Northern Virginia and is a major artery to Ronald Reagan Washington National Airport. In addition, the parkway is used by many residents and tourists to access downtown Washington, DC.

Pedestrians and Bicyclists Safety. A large number of pedestrians, joggers, and bicyclists use the Mount Vernon Trail. At this location, the trail uses the existing shoulder of the bridge, is unprotected and is less than 3 feet from the roadway. Relocation of the trail is necessary to improve safety. The issues are maintaining the trail access and protecting trail users during construction.

IMPACT TOPICS INCLUDED IN THIS DOCUMENT

Impact topics are resources of concern that could be affected, either beneficially or adversely, by the range of alternatives. Impact topics were identified based on Federal laws, regulations, Executive Orders, National Park Service *Management Policies* (NPS, 2000), the Environmental Screening Form from Director's Order #12 (NPS, 2001), and from the National Park Service knowledge of limited or easily impacted resources. The Environmental Screening Form was completed by the National Park Service staff and identifies potential issues and impact topics that required additional investigation to address the requirements of the National Environmental Policy Act of 1969 and Director's Order #12 (NPS, 2001). Specific impact topics were developed to ensure the alternatives were compared based on the most relevant topics. As a means of evaluation, impact topics included in this document were analyzed in more detail to compare the environmental consequences of the No-Action Alternative and the two action alternatives.

Historic Structures/Sites. The bridge over the National Airport North Entrance was built in 1941. The structure is a contributing element to the George Washington Memorial Parkway's listing on the National Register of Historic Places. The National Park Service is proposing to alter and/or change the appearance and features of this historic structure; thus, the National Park Service must consider potential impacts from rehabilitation of the bridge to Historic Structures/Sites. As a result, this impact topic was analyzed in more detail in this Environmental Assessment.

Cultural Landscapes. The George Washington Memorial Parkway contains natural features and historic structures that contribute to some of the most recognizable cultural landscapes in the United States. Any construction along the parkway must fully consider the potential impacts to the cultural landscape and be preformed in a manner consistent with *Secretary of the Interior's Standards for the Treatment of Historic Properties With Guidelines for the Treatment of Cultural Landscapes*. As a result, Cultural Landscapes was retained for further investigation in this Environmental Assessment,

Aesthetics and Visual Resources. The George Washington Memorial Parkway offers some of the most spectacular vistas of the Potomac River and monuments in Washington DC, and historic and commemorative features on the parkway. The rehabilitation of the bridge and realignment of the Mount Vernon Trail near the bridge has the potential to affect the Aesthetics and Visual Resources; therefore, the National Park Service retained Aesthetics and Visual Resources for further analysis in this Environmental Assessment.

Transportation (Traffic). The George Washington Memorial Parkway is a major transportation route and critical to the traffic flow to Washington, DC, and surrounding areas. Construction projects on the George Washington Memorial Parkway have the potential to cause excessive delays and congestion. As a result, the National Park Service must analyze potential impacts on area traffic and access to the airport and seek ways to minimize the short-term impacts caused by construction.

Health and Safety. The National Park Service retained Health and Safety as an impact topic because of the trail's close proximity to the roadway and heavy use by pedestrians, joggers, and bicyclists. The National Park Service wants to keep the trail open during construction and, as a

result, protective measures need to be studied and implemented to ensure the safety of trail users during construction.

Vegetation. Trees and shrubs exist near the bridge. The National Park Service would have to remove some of this vegetation to relocate the trail away from the roadway. The potential impacts and mitigation measures to replace the vegetation need to be assessed; therefore, Vegetation was retained as an impact topic for further investigation in this document.

Visitor Use and Experience. The project alternatives have the potential to cause short-term impacts on the visitor experience because of trail detours and lane closures necessary for construction. As a result, Visitor Use and Experience was retained for detailed investigation in this document.

TOPICS DISMISSED FROM FURTHER ANALYSIS

The non-controversial topics listed below would have no effect, a negligible effect or in some specific cases, a minor effect for each alternative evaluated in this document. For specific definitions of negligible and minor, please referred to the Environmental Consequences section; however, in general, negligible effects are effects that are localized and immeasurable. Topics that are readily apparent to have either no, negligible, or minor effect are briefly discussed in this section of the Environmental Assessment and then dismissed from further consideration or evaluation.

ARCHEOLOGICAL RESOURCES

The proposed project would result in minor earth disturbance from the bridge extension or new trail bridge on the north side of the parkway. This area of disturbance is small (less than 0.5 acre). The construction of the bridge, roadway, trails, and entrance to the airport has previously disturbed the grounds near the bridge. As a result, there is little to no potential from the proposed action that would have an impact on important archeological resources; therefore, Archeology Resources was dismissed as an impact topic.

WATER RESOURCES (WETLANDS, SURFACE WATERS, FLOODPLAINS, GROUNDWATER, SCENIC RIVERS DESIGNATION.)

There are no existing wetlands or surface waters within the project area (USFWS, 2003a). The project area and this portion of the George Washington Memorial Parkway are located in the Roaches Run watershed, which drains into the Potomac River about 0.5 mile north of the project area. The closest waterway is the Potomac River, which is located approximately 3,200 feet (0.6 mile) east of the project area (refer to Figure 3). Four Mile Run is located approximately 5,800 feet (1.1 miles) south of the project area. No stream segment near the project area is designated as a Scenic River by the National Park Service.

A review of the Federal Emergency Management Agency Flood Insurance Rate Maps to define the extent of 100-year floodplains in the project area indicated that the project area is not located in the 100-year regulatory floodplain (FEMA, 1982). Therefore, the project poses no to negligible potential impacts to the 100-year floodplain. Groundwater aquifers underlying the project area are unconsolidated deposits, primarily of alternating layers of sand, gravel, shell rock silt,

and clay. A shallow unconfined aquifer system lies above relatively impermeable clay beds. The principal source of groundwater withdrawal is a deeper system of unconfined aquifers (VDEQ, 2003a). This project would have a negligible increase on the area of impervious surfaces and, therefore, the infiltration capacity of the soils would not be affected. Therefore, this project poses no to negligible potential impact to groundwater resources.

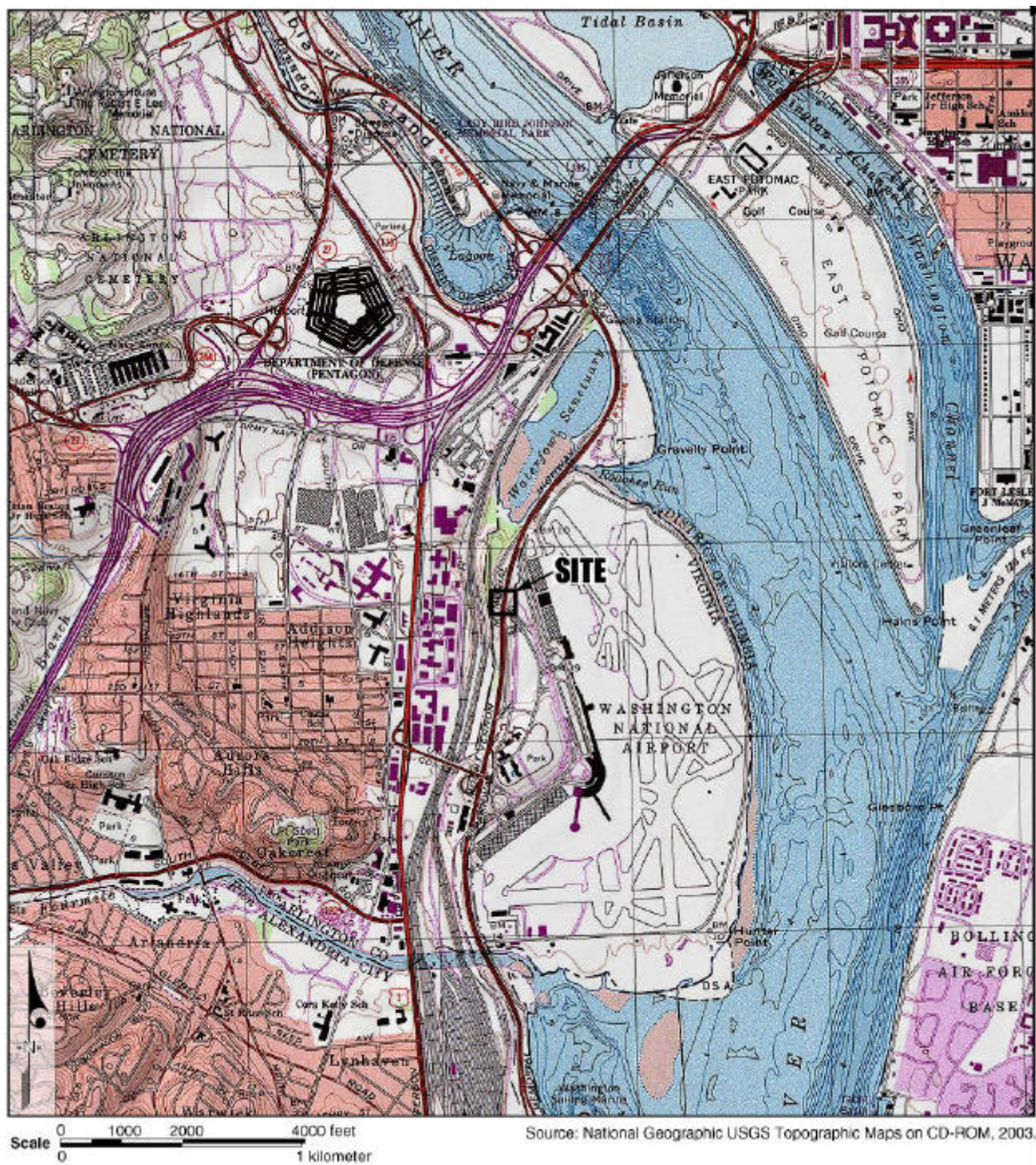


Figure 3. USGS topographic map - Alexandria quadrangle
(depicting topography and proximity of project area to water resources)

Because the effects listed in the Water Resources section of this Environmental Assessment would have no or negligible effects on water resources in or near the project area, Water Resources has been dismissed as an impact topic retained for further consideration.

COASTAL ZONE MANAGEMENT

“Pursuant to the Coastal Zone Management Act, in 1986, the National Oceanic and Atmospheric Administration approved the Virginia Coastal Resources Management Program. Accordingly, federal activities which are reasonably likely to affect any land or water use or natural resources of Virginia's designated coastal resources management area must be consistent with the enforceable policies of the Virginia Coastal Resources Management Program” (VDEQ, 2003b). All federal development projects inside the coastal zone are automatically subject to consistency and require a Consistency Determination.

Arlington County is within the state's coastal zone management area (VDEQ, 2003b) and therefore, the project area is within Virginia's Coastal Management Zone and subject to Federal Consistency requirements under the Virginia Coastal Zone Management Program. As discussed previously in the Water Resources section, the project alternatives would not take place in or near or have an affect on wetlands, floodplains, waters of the United States or other resources associated with the state's coastal zone. The project would not result in any actions that would have any foreseeable direct, indirect, secondary or cumulative impacts on Virginia's coastal zone; therefore, the National Park Service has determined the project to be consistent with Virginia's Coastal Zone Management Program.

AIR QUALITY

Air quality became a national concern in the mid-1960s, leading to the passage of the Air Quality Act in 1967. The Act (now referred to as the Clean Air Act) and subsequent amendments have established procedures for improving conditions, including a set of National Ambient Air Quality Standards. The U.S. Environmental Protection Agency is directed to set levels for pollutants in order to protect the public health. The National Ambient Air Quality Standards have been adopted for six pollutants: carbon monoxide, nitrogen dioxide, ozone, particulate matter, sulfur dioxide, and lead. A system of monitoring stations was established across the country to measure progress in meeting these goals. If an area is found to exceed the allowable concentrations, local officials are required to develop a plan for achieving air quality that meets the standards.

In addition to these six criteria pollutants, volatile organic compounds (VOCs), which are created when fuels or organic waste materials are burned, are a source of concern and are regulated as precursors to ozone. Ozone is formed in, and downwind of, urban areas when sunlight and high temperatures cause photochemical reactions between emissions of VOCs and nitrogen oxides (NO_x). Major sources of VOC and NO_x include motor vehicles and construction equipment. Most hydrocarbons are presumed to be VOCs in the regulatory context, unless otherwise specified by the USEPA.

The project site is located within the National Capital Interstate Air Quality Control Region, which includes Washington, DC, and several surrounding counties of Maryland and Virginia.

The region currently meets National Ambient Air Quality Standards for all criteria pollutants except ozone. The USEPA has designated the region as a “serious non-attainment area” for ozone. The existing air pollutant sources on and adjacent to the project site are emissions from vehicular traffic on the parkway, Ronald Reagan Washington National Airport, and nearby U.S. 1 and Interstate 395.

Only negligible short-term impacts from emissions during vehicular delays and from construction equipment would occur during construction. Construction activities would be timed so that traffic delays would be minimized during peak flow and thus minimize vehicular emissions. With appropriate best management practices, the short-term, adverse impacts to trail users from fugitive dust during construction would be negligible. No cumulative or long-term impacts would result. Therefore, Air Quality was dismissed as an impact topic from further consideration.

SOUNDSCAPE MANAGEMENT

In accordance with the National Park Service *Management Policies* (NPS, 2000a) and Director’s Order #47, *Sound Preservation and Noise Management* (NPS, 2000b), an important objective of the National Park Service’s mission is the preservation of natural soundscapes associated with National Park Service units. Natural soundscapes exist in the absence of human caused sound. The natural ambient soundscape is the aggregate of all the natural sounds that occur in park units, together with the physical capacity for transmitting natural sounds. Natural sounds occur within and beyond the range of sounds that humans can perceive and can be transmitted through air, water, or solid materials. The frequencies, magnitudes, and duration of human caused sound considered acceptable varies among National Park Service units. Acceptance levels of noise for each park unit are generally greater in developed areas and less in undeveloped areas.

Several transportation-related noise sources currently exist in the project area (i.e., George Washington Memorial Parkway traffic, Metro rail trains, freight and passenger trains, and aircraft activity at Ronald Reagan Washington National Airport). Arlington County has adopted a noise ordinance that sets stringent standards on noise generators, depending on the zoning district classification of the receiving property. Construction activities can occur at anytime; however, there are noise limits by time of day for construction. The normal noise decibel level can be exceeded from 7:00 a.m. to 9:00 p.m. Monday through Friday and 10:00 a.m. to 9:00 p.m. on weekends and legal holidays. This would include the use of power equipment and other activities.

Construction activities would be expected to contribute negligible, short-term noise impacts but are still expected to be within the acceptable levels set forth in the Arlington County’s noise ordinance. With the several transportation-related noise sources that currently exist, the noise levels associated with the construction activities would have no to negligible impact on the soundscape of the Parkway and the change in frequencies, magnitudes, and duration of human-caused sound would not be perceptible or the change would be negligible. Therefore, Soundscape Management was dismissed as an impact topic for this document.

LIGHTSCAPE MANAGEMENT

In accordance with National Park Service *Management Policies* (2001), the National Park Service strives to preserve to the extent possible the quality of lighting associated with natural ambient landscapes and the night sky, which includes airport lighting and highway lighting in the project area. Directional lighting from construction activities after dark conflicts with airport lighting practices and may be an issue for airport operations. The use of lights at night by a contractor would need to be in compliance with the airport requirements. The National Park Service would notify the contractor of these restrictions prior to construction and the contractor would have to adhere to these requirements. Because the proposed action alternatives would not alter or affect the existing lightscapes of the George Washington Memorial Parkway or the adjacent Ronald Reagan Washington National Airport, or result in any long-term or cumulative impacts, Lightscape Management was dismissed as an impact topic.

INDIAN TRUST RESOURCES

The Department of the Interior Secretarial Order 3175 (Departmental Responsibilities for Indian Trust Resources) requires that any anticipated impacts to Indian Trust Resources from a proposed action by Department of Interior agencies be explicitly addressed in environmental documents. The Federal Indian Trust responsibility is a legally enforceable fiduciary obligation on the part of the United States to protect tribal lands, assets, resources, and treaty rights, and it represents a duty to carry out the mandates of Federal law with respect to American Indian and Alaskan native tribes. Indian Trust Resources do not exist within the project site, and the lands are not held in trust by the Secretary of Interior for the benefit of Indians. Therefore, this impact topic was dismissed from further consideration.

ETHNOGRAPHIC RESOURCES

The National Park Service defines ethnographic resources as any “site, structure, object, landscape or natural resource feature assigned traditional legendary, religious, subsistence or other significance in the cultural system of a group traditionally associated with it” (Director’s Order - 28, *Cultural Resources Management Guidelines*, p. 181) (USDI, 1998). Based on the park’s staff professional judgment, no ethnographic resources exist in the project area. If they did exist, the rehabilitation of the bridge would not likely impact on any of these resources. Therefore, this impact topic was dismissed from further consideration.

TOPOGRAPHY, GEOLOGY, AND SOILS

The project area is located in Arlington County, Virginia, situated within the Coastal Plain Province (Bailey, 1999). The elevation of the George Washington Memorial Parkway at the project site is approximately 30 feet above mean sea level (Arlington County, 2003a). The Coastal Plain Province extends from the fall line to the Atlantic Ocean. The Virginia Coastal Plain is underlain by a thick wedge of sediments that increases from featheredge at the fall line to more than 13,000 feet under the continental shelf. The Coastal Plain proper is characterized by low relief. The geology of the project site itself is Lowland Terrace Deposits of middle Pleistocene origin and consists of gravel, sand, silt, and clay and may be up to 35 feet thick (Arlington County, 2003a). There are no known faults or high-strain zones mapped in the area (Bailey, 2000).

The project area and the surface soils are highly disturbed urban soils and fill material brought in to support the roadbeds and adjacent construction. Because of the highly disturbed nature of the soils in the area, the soils along this section of the George Washington Memorial Parkway and the adjacent Ronald Reagan Washington National Airport have not been surveyed by the Natural Resources Conservation Service (Arlington County, 1999). The small earth disturbance of the proposed project would have negligible adverse impacts on soils because the project area consists of highly disturbed soils and fill material from the construction of roadways and the airport. The National Park Service with sediment and erosion control and other best management practices would minimize any affects associated with erosion and compaction at the project area. Overall, the alternatives are expected to have no or negligible impacts on the topography, geology, or soils in the project area; therefore, these topics were dismissed from further consideration.

AGRICULTURAL LANDS, PRIME AND UNIQUE FARMLAND SOILS

The soils mapped on the project site are not regulated under the Federal Farmland Protection Policy Act (7 CFR Part 658 of July 5, 1984, as superseded by the Farmland Protection Policy Act Final Rule of June 17, 1994). The existing soils on the project area are fill material or soils that have been subjected to prior disturbances by urban and industrial activities, including road construction. The soils on the site are mapped as Urban Land, which is not classified as a Prime Farmland Soil. Because the soils in the project area are in an urbanized area, none of the alternatives would cause any impact to prime farmlands soils as defined by the U.S. Department of Agriculture nor would they be regulated under the Federal Farmland Protection Policy Act; therefore, these resources were dismissed as an impact topic.

WILDLIFE

Due to the George Washington Memorial Parkway's proximity to the Ronald Reagan Washington National Airport and highly developed residential and urban areas, wildlife within the project site is typically limited to those species that have adjusted to human activity. Common wildlife species noted in the project area are primarily those associated with open spaces and forest edge habitats. Species expected to be present include gray squirrel (*Sciurus carolinensis*), eastern cottontail (*Sylvilagus floridanus*), mice and other small rodents, house sparrow (*Passer domesticus*), common pigeon (*Columba livia*), mourning dove (*Zenaida macroura*), European starling (*Sturnus vulgaris*), American crow (*Corvus brachyrhynchos*), and American robin (*Turdus migratorius*).

No aquatic habitat is located within the immediate project area. The Potomac River tidal basin, directly east of the project area, is a fish and waterfowl habitat. Roaches Run Waterfowl Sanctuary, a lagoon in Roaches Run just north of the site, was created during the construction of the parkway in the early 1930s. The sanctuary is used by ducks, geese, and other water birds, shorebirds, and other birds and wildlife associated with wetlands and open water.

Should any of the alternatives be implemented, only a negligible disruption would occur to wildlife because the project area is located within a maintained and human-dominated landscape near a major roadway and airport and is subject to continuing disturbance. Therefore, Wildlife was dismissed as an impact topic.

RARE, THREATENED, ENDANGERED, CANDIDATE SPECIES AND SPECIES OF SPECIAL CONCERN

The U.S. Fish and Wildlife Service and Virginia Department of Conservation and Recreation were contacted to determine whether any known critical habitats or listed rare, threatened, or endangered species have been documented on the project area. The U.S. Fish and Wildlife Service indicated no Federally listed rare, threatened, and endangered species or species of concern are expected to be impacted by the preferred alternative (USFWS, 2003b, see Appendix A). The Virginia Department of Conservation and Recreation indicated that there are no records of any rare, threatened, or endangered species or critical habitats on the project area (VDCR, 2003, see Appendix A). Due to the maintained landscape and adjacency to highly occupied human areas, it is unlikely that the project area provides suitable habitat to any rare, threatened or endangered species or species of special concern.

Should any of the alternatives be implemented, no impacts to any listed special status species or designated critical essential habitats are anticipated because species or habitat are not likely to exist in the project area. Therefore, Rare, Threatened, Endangered, or Candidate Species and Species of Special Concern was dismissed as an impact topic.

SOCIO-ECONOMIC ENVIRONMENT

The George Washington Memorial Parkway bridge rehabilitation project is located in Arlington County. It is adjacent to the Ronald Reagan Washington National Airport, and it is in close proximity to high-density housing, office complexes, government offices, and military installations. The bridge spans the southbound access to the northern end of the Ronald Reagan Washington National Airport. The Services sector and the Government and Government Enterprises sector are the major employment sectors in the county, providing approximately 145,000 jobs in 2000 (Arlington County, 2003b).

There would be no change in employment in the area because of construction or implementation of the bridge rehabilitation project. Minimal employment opportunities and some related revenues for construction materials are anticipated for the rehabilitation of the bridge. Minimal economic impacts to area businesses from transportation-impeded access may occur. However, these socio-economic impacts would be short-term and negligible, with only minor impacts to the local economies of the surrounding area. The proposed project is expected to have negligible impact on the socio-economic environment; therefore, the Socio-Economic Environment was dismissed as an impact topic.

LAND USE

The project area is located within the right of way of the George Washington Memorial Parkway, between the Ronald Reagan Washington National Airport and the CSXT rail line. Under the Arlington County Zoning Ordinance, the parkway and the airport are zoned Special District S-3A by Arlington County; this zoning district is to encourage the retention of property in a relatively undeveloped state. Property to the west of the project is zoned Commercial Office Building, Hotel, and Apartment Building, C-O-1.5; this is to provide for limited office building land use and, under appropriate conditions, office building, hotel, apartment, and commercial and/or institutional redevelopment of older commercial and industrial areas (Figure 4). The rehabilitation of the bridge would be consistent with existing zoning of the project area and with the existing sur-

rounding land use under the Arlington County Zoning Ordinance; therefore, Land Use was dismissed as an impact topic.

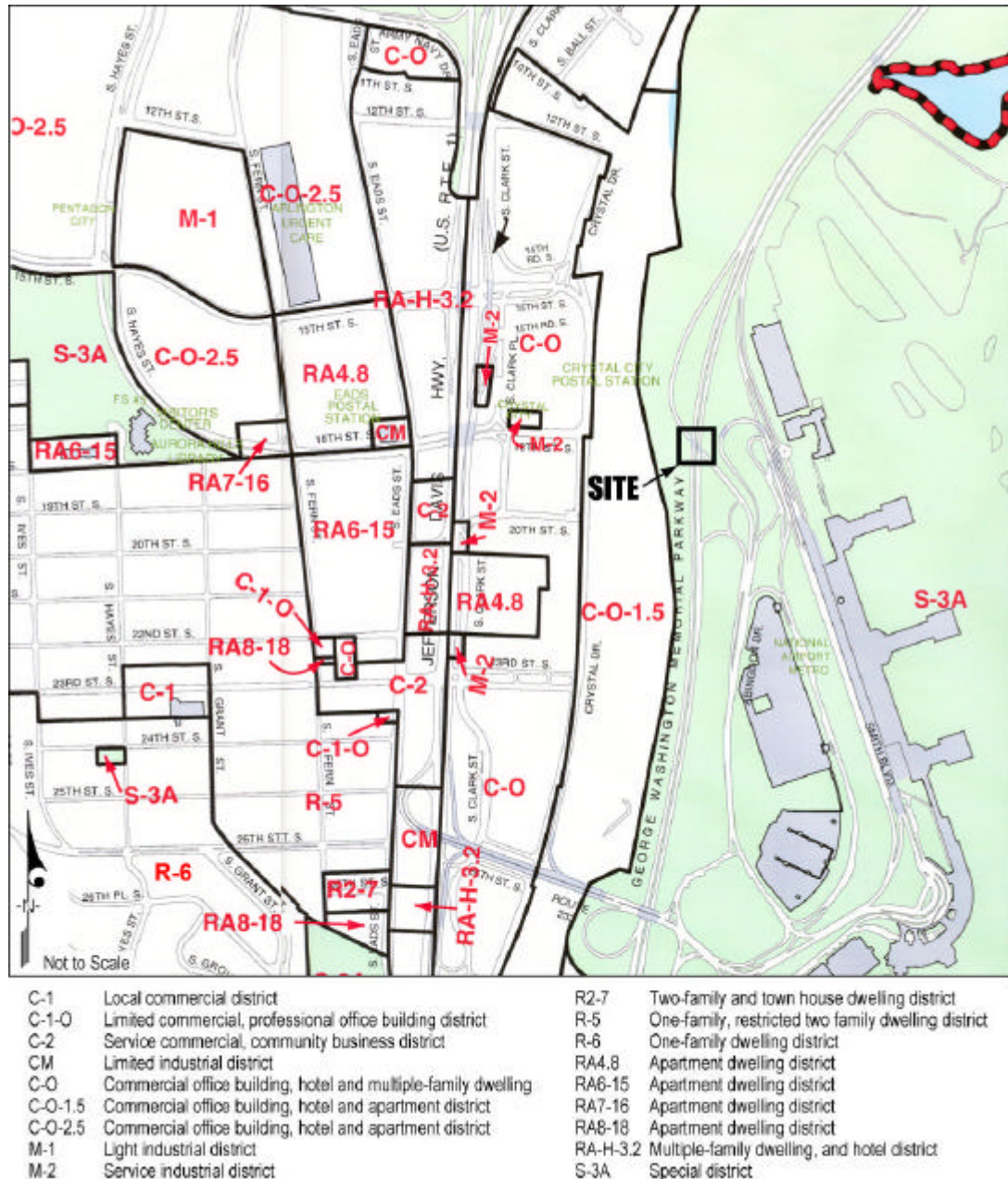


Figure 4. Zoning/land use map
Source: Arlington County, Virginia

ENVIRONMENTAL JUSTICE

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations directs Federal agencies to identify and address as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority or low-income populations.

According to the 2000 U.S. Census (U.S. Census, 2002a, b) numbers, the minority community in Arlington County, Virginia, is approximately 30 percent and approximately 9 percent of the population is over the age of 65. The percentage of all individuals living below the poverty line in Arlington County is approximately 5 percent, which is considerably lower than the national average of 13 percent. Minorities and low-income populations exist in Arlington County; however, none exist within the project area nor would they be negatively impacted by the alternatives; therefore, Environmental Justice was dismissed as an impact topic.

COMMUNITY FACILITIES AND SERVICES

Emergency, Fire, and Rescue Services – The Arlington County Fire Department has 10 stations in the county staffed by career and volunteer firefighters and paramedics. Station No. 5, located at 1070 South Hayes Street, approximately 1¼ miles east of the project area, provides the nearest fire and medic equipment. The Virginia Hospital Center in Arlington would most likely provide medical services for any incidents. Rehabilitation of the bridge would have negligible, short-term, adverse impacts on fire and rescue activities because of the potential for increased traffic congestion during construction. Access into the airport would be slightly affected. The traffic congestion from one lane closure would be minimized because of time of day work restrictions. The delays would be similar to that experienced during rush hour traffic. Traffic impacts and delays are discussed in the Transportation (Traffic) section. The impact would also be negligible because the airport maintains their own fire and rescue services; so the effects of one lane closure during construction would have only a negligible impact on fire and rescue response.

Police – The George Washington Memorial Parkway is patrolled by U.S. Park Police from the Turkey Run Park in McLean, Maryland. Rehabilitation of the bridge would have no impact on police capabilities or emergency response of the Park Police

Schools - The county school system includes 37 public schools and 9 private schools. The project would not have any impact on bus routes because the proposed traffic control measures would only result in minor delays for those vehicles entering the airport. No impact to the school system would occur.

Nearby Parks and Recreation - In Arlington County, there are approximately 35 community parks and recreational areas within about 3 miles of the project area. Additional facilities exist along the George Washington Memorial Parkway both north and south of the project area. Users and visitors to the area would continue to take advantage of the nearby park and recreational activities available and would not be impacted by the bridge rehabilitation. Access to ride bikes or walk across the bridge would remain open during construction and would not affect the user's ability to access other nearby resources; therefore, no impact to nearby parks and recreation would occur. Potential impacts on recreational activities on the George Washington Memorial Parkway are described in the Visitor Use and Experience section.

Overall, community facilities and services are not anticipated to be directly affected by the rehabilitation of the bridge; therefore, Community Facilities and Services was dismissed as an impact topic.

INFRASTRUCTURE

Water and Sewer Service - The Arlington County Department of Public Works provides water and sewer service to county residents. The water supply source is the Potomac River. Arlington County operates its own sewage treatment facility. The Potomac River is the receiving water body for the sewage treatment facility. No water and sewer connections would have to be re-aligned. Existing water and sewer main lines would not have to be taken out of service.

Storm Drainage - Storm drainage in the area of the bridge is primarily sheet-flow runoff with storm drains collecting runoff from the parkway. The construction of this project would comply with State of Virginia sediment and erosion control practices. Under current state regulations, sites less than 1 acre in size are not required to obtain a General Permit for Stormwater Management from the state and, therefore, the state would not require post construction stormwater management. The change to the existing bridge footprint and area of disturbance for the project would be less than 0.5 acre, and the total increase in impervious area would be negligible. Changes to the existing stormwater management practices on the parkway would not be required.

Electrical Power and Natural Gas – PEPCO electrical conduits are attached to the substructure of the existing bridge and may need to be relocated by PEPCO. Rehabilitation of the bridge would not impact the electrical power service in the project area. There is no natural gas line in the area.

Communication – Local telephone service is provided by Verizon. There is no existing fiber-optic cable line in the project area.

Waste Management –Solid waste generated from rehabilitation of the bridge would be disposed of by a commercial licensed waste management company that would comply with all Federal and state requirements.

The existing infrastructure within the project area is not anticipated to be directly affected by the restoration and rehabilitation of the bridge. The bridge would not negatively impact water and sewer service, storm drainage, electrical power and natural gas, communication, and waste management. Therefore, Infrastructure was dismissed as an impact topic.

PARK OPERATIONS

Park operations for this analysis refers to the quality and effectiveness of the infrastructure and the ability to maintain the infrastructure used in the operations of the park, required to adequately protect and preserve vital resources and to provide an effective visitor experience. Under all the alternatives, the bridge would continue to provide adequate access and would have no affect on park operations. However, an impact could occur from adding additional demands on the park staff to maintain the bridge. If the bridge decking were not replaced, the National Park Service maintenance staff would have to more habitually repair potholes resulting from the deteriorating bridge deck. If the decking were replaced in the case of the action alternatives, then park operations would be improved by reducing the frequency of maintenance required. Under any alternative, the effect on the park operations is expected to be negligible or minor because the bridge over the north entrance to the airport represents such a small portion of the entire parkway and subsequently, the alternatives would only a negligible affect the park staff or resources.

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PREFERRED ALTERNATIVE AND OTHER ALTERNATIVES

This section describes the George Washington Memorial Parkway's management alternatives for the rehabilitation of the bridge over the National Airport north entrance. Alternatives for this project were developed to resolve potential issues associated with reducing traffic and maintaining access to Ronald Reagan Washington National Airport and assuring pedestrian and bicyclist safety on the Mount Vernon Trail.

ALTERNATIVE A – NO-ACTION

The No-Action Alternative describes the action of continuing the present management operations and conditions. It does not imply or direct discontinuing the present action or removing existing uses, development, or facilities. The No-Action Alternative provides a basis for comparing the management direction and environmental consequences of the alternatives. Should the No-Action Alternative be selected, the National Park Service would respond to future needs and conditions associated with the bridge without major actions or changes in present course. Under the No-Action Alternative, the National Park Service would continue management actions that would include minimum rehabilitation of the bridge to maintain the existing integrity and character of the historic structure. The National Park Service would conduct minor "spot" repairs to the bridge and road surface so the bridge remains operational and safe; however, over time, deterioration of the bridge and road surface (i.e., spalling and potholes) would become more prevalent. The National Park Service would not replace and upgrade other features on the bridge such as guardrails and bridge railings to meet American Association of State Highway Transportation Officials (AASHTO) standards. Rehabilitation of the bridge exterior and its appearance such as recapping facestones and painting the bridge beams would not occur. The Mount Vernon trail would continue to be on the shoulder of the bridge and remain approximately 3 feet from the vehicular traffic on the George Washington Memorial Parkway. Figure 5 shows the existing bridge exterior.



Figure 5. Photograph of the existing bridge over National Airport north entrance

ALTERNATIVE B – BRIDGE REHABILITATION WITH EXTENSION FOR TRAIL REALIGNMENT (PREFERRED ALTERNATIVE)

The Preferred Alternative presents the National Park Service's proposed action and defines the rationale for the action in terms of resource protection and management, visitor and operational use, costs, and other applicable factors. Under Alternative B, the Preferred Alternative, the National Park Service in cooperation with the Federal Highway Administration proposes to rehabilitate the historic bridge over the north entrance to Ronald Reagan Washington National Airport on the George Washington Memorial Parkway. The components of Alternative B would include the replacement of the bridge decking, replacement of guardrails and railings, and construction of a shoulder extension (effectively widening the bridge by 15 feet) to realign the Mount Vernon Trail. The shoulder extension and trail realignment would allow the National Park Service to spatially and physically separate trail users from northbound traffic on the George Washington Memorial Parkway.

A stone-faced parapet barrier wall would be constructed between the trail and the highway. Other project elements include:

- Replace bridge decking with a concrete deck surface
- Relocate outside curved steel girder to maintain appearance
- Reconstruct the concrete approach slabs
- Remove and replace bridge railings and curb
- Paint bridge beam
- Remove asphalt bicycle/pedestrian path
- Connect timber guardrail to stone bridge parapet
- Construct barrier curb along bridge length
- Seal cracks and fix spalls on bridge abutment walls
- Examine northbound bridge parapet wall for safe heights and raise it if necessary
- Repair/replace pedestrian lighting under bridge
- Reset capstones on guardwall underneath bridge
- Construct temporary detour lanes on bridge shoulders and in median in order to maintain four lanes of traffic
- Replace all striping
- Construct asphalt tie-ins at each end to relocate Mount Vernon Trail

Figures 6 and 7 are computer generated renderings of Alternative B illustrating the proposed bridge expansions and trail realignment on the east side of the parkway. These renderings show the stone-faced parapet barrier wall that would be constructed to spatially and physically separate trail users from northbound traffic on the George Washington Memorial Parkway. The stone-faced parapet barrier wall would be identical to the other side of the trail and bridge. The preferred rail options are different from that shown in Figures 6 and 7. The preferred rail option uses a rail with vertical balusters to maintain the character of the original rail. In addition, Figures 8 and 9 do not show the guardrails.



Figure 6. Top view of the bridge with extension to support the realigned trail (Alternative B)¹



Figure 7. Side view of the bridge with extension to support the realigned trail (Alternative B)

¹ The renderings were created to show the structural components of each action alternative. The bridge renderings are not representative of other bridge or site features such as the new railings, guardrails, or existing vegetation that would remain.

To the extent practical, the original stone facing of the bridge abutment wingwalls would be removed, reused, and reset in a similar manner to the original appearance. Matching stonework would be installed where necessary on new construction. Other architectural features would be replaced with those of a similar nature or would be in character with the parkway design requirements. Any native trees removed would be replaced with plantings of native species and the planting needs to be consistent with the 1932 Mount Vernon Memorial Highway Planting Plan and other subsequent approved planting plans for the area.

Construction Sequencing, Temporary Traffic Management and Work Limitations

A detailed traffic control plan would be implemented for the project. The preliminary traffic control plan includes six phases of traffic control. Lane shifts, use and closure of shoulders, work and buffer areas, trail detours, and road closures are specified in each phase along with appropriate construction signage and use of vehicular message signs for both the parkway and the trail. Protective measures such as concrete barriers, chain-link fencing, and a debris shield are specified in the plan. During construction, the National Park Service would require that the contractor maintain a designated person on-site whose sole responsibility would be adhering to the traffic control plan.

The plan provides various work restrictions to minimize the impacts on traffic and safety. Both lanes of the ramp under the bridge can only be closed to remove and reset the fascia girder. All other work must be performed either under a single-lane closure, or with both lanes open. One lane must remain open for non-rush hours during the day and both lanes must be open during rush hours. For this project, the Federal Highway Administration defined rush hours as 5:30 a.m. to 10:00 a.m. and 3:00 p.m. to 7:00 p.m. Monday through Friday (except holidays). Construction-related delays from lane closures would only occur during non-rush hours. Four lanes of traffic along the parkway must be maintained during all weekday hours and for weekends preceding a holiday. Two lanes may be closed during non-holiday weekends. To maintain four lanes of traffic, temporary detours would need to be constructed by widening the southbound and northbound lanes along the shoulders behind the curb and median. The plan includes provisions for working near the airport such as restrictions on the use of lights for night work and maintaining the access to the airport. Any closure of the ramp must be coordinated with the airport. The contractor would be required to keep the trails open at all times.

ALTERNATIVE C –BRIDGE REHABILITATION WITH NEW TRAIL BRIDGE

Under Alternative C, the National Park Service would rehabilitate the historic bridge as described under Alternative B except a new pedestrian bridge would be constructed parallel to the parkway instead of extending the existing bridge. The major project components of Alternative C include the replacement of the bridge decking, repair of guardrails and railings, and construction of a new trail bridge similar to the other two pedestrian bridges on the Mount Vernon Trail near the airport. The new trail bridge would remove trail users from the highway shoulder and separate them from northbound traffic on the George Washington Memorial Parkway. Figures 8 and 9 are computer generated renderings that illustrate the new bridge and the separation from the parkway. The preferred rail options are different from that shown in Figures 8 and 9. The preferred rail option uses a rail with vertical balusters to maintain the character of the original rail. In addition, Figures 8 and 9 do not show the guardrails.



Figure 8. Top view of the new trail bridge to support the realigned trail (Alternative C)²

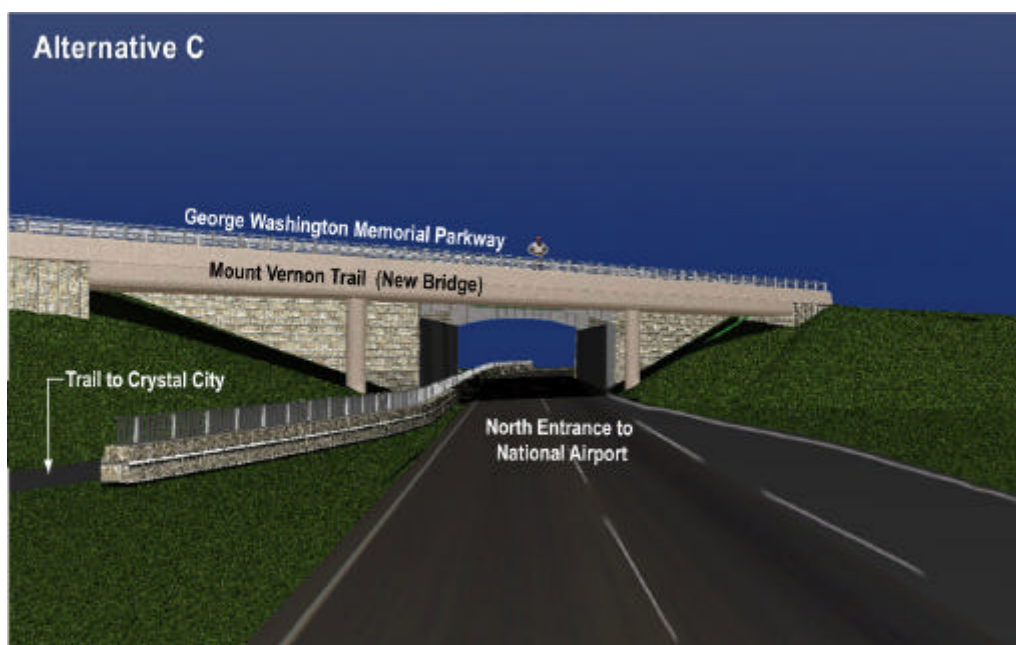


Figure 9. Side view of new trail bridge to support the realigned trail (Alternative C)

² The renderings were created to show the structural components of each action alternative. The bridge renderings are not representative of other bridge or site features such as the new railings, guardrails, or existing vegetation that would remain.

The bridge would be designed and constructed consistent with the George Washington Memorial Parkway design requirements. This design would include stone-faced side walls on the bridge approaches and railings similar to that used on the other bridges. Any native trees removed for the undertaking would be replaced in kind. Traffic control and work limitation would be similar to that described for Alternative B.

ENVIRONMENTALLY PREFERRED ALTERNATIVE

In accordance with Director's Order # 12 (NPS, 2001), the National Park Service is required to identify the "environmentally preferred alternative" in all environmental documents, including Environmental Assessments. The environmentally preferred alternative is determined by applying the criteria suggested in National Environmental Policy Act of 1969, which is guided by the Council on Environmental Quality. The Council on Environmental Quality provides direction that "[t]he environmentally preferable alternative is the alternative that will promote the national environmental policy as expressed in Section 101 of the National Environmental Policy Act, which considers:

1. Fulfilling the responsibilities of each generation as trustee of the environment for succeeding generations;
2. Assuring for all generations safe, healthful, productive, and aesthetically and culturally pleasing surroundings;
3. Attaining the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences;
4. Preserving important historic, cultural, and natural aspects of our national heritage and maintaining, wherever possible, an environment that supports diversity and variety of individual choice;
5. Achieving a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities; and
6. Enhancing the quality of renewable resources and approaching the maximum attainable recycling of depletable resources (National Environmental Policy Act, Section 101)."

The No-Action Alternative is not the environmental preferred alternative because it does not fulfill Criteria 1, 2, 3, 4, 5, and 6 listed above. Specifically, the No-Action Alternative would not assure that the bridge is maintained for each succeeding generation in that deterioration of the bridge decking and surface would continue. Safety would be compromised over time because potholes on the road surface would become more prevalent on the bridge and would affect safe driving conditions on the parkway. Also the close proximity of the trail users to northbound traffic on the parkway would not be addressed and safety concerns would persist. The historic character of the bridge would not be preserved: rehabilitation is necessary to achieve a balance between the resource and the population that use the parkway to assure a high standard of living.

Alternative B fulfills Criteria 1, 2, 3, 4, 5, and 6. The rehabilitation of the bridge would fulfill the National Park Service's responsibilities as a responsible trustee of the environment; assure a safe and aesthetically pleasing environment for future generations; preserve an important historic resource; achieve a balance between the resource and the population who use the parkway to assure a high standard of living; and enhance the quality of the renewable resource. The primary difference between Alternative B and Alternative C is in the protection of the historic aspects of our national heritage.

Alternative C would not preserve the historic aspects of our national heritage because the new trail bridge would cause visual impacts to a contributing element of the cultural landscape. The new trail bridge would not be representative of the original stonework and workmanship of the parkway; therefore, implementation of Alternative C would not meet Criterion 4. Alternative C does fulfill Criteria 1, 2, 3, 5 and 6

Alternative B is the "environmentally preferred alternative" over Alternative C because Alternative B fulfills Criterion 4 by offering benefits in preservation of our national heritage; whereas, Alternative C would not fulfill Criterion 4 because of visual impacts to the historic resource and cultural landscape.

STAGING AREA

The staging area has been identified as an area at Daingerfield Nursery, which is located on Daingerfield Island. Daingerfield Island is east of the airport and Four Mile Run on the northeast side of the parkway. This area has been chosen because of its close proximity of the project site, the area has been previously disturbed so use of the site is unlikely to impact park resources, and this location is away from the normal trail activities and traffic flow. This area would minimize disturbance to the areas by placing the construction equipment away from the trail and airport. The potential impacts associated with the staging area were also considered in the impact analysis.

MITIGATION MEASURES/CONDITIONS OF THE ACTION ALTERNATIVES

Mitigation measures or conditions are presented as part of the Preferred Alternative and have been developed to lessen the adverse effects of the Preferred Alternative. The following mitigation measures are recommended for the implementation of the Preferred Alternative:

Cultural Resources

Section 106 Compliance - The rehabilitation of the historic bridge would be conducted in a manner that is consistent with the *Secretary of Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Restoring, and Reconstructing Historic Structures* and *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes*. To the degree practical, the existing stonework would be dismantled, reused and reset in a manner consistent with the parkway's design. Any new stonework necessary for the bridge façade would be similar in color and texture to closely match the existing stonework.

Aesthetics and Visual Resources

Any new stonework necessary for rehabilitation of the bridge abutment wingwalls would be similar in color and texture to closely match the existing stonework. To the extent practical, the construction equipment would be stored at the staging area to minimize visual impacts to the parkway.

Transportation, Traffic, and Safety Mitigation

Traffic Control and Management. A traffic control plan would be developed by the Federal Highway Administration and adhered to during construction by the contractor. Various work restrictions are necessary to minimize the impacts on traffic and safety. The ramp under the bridge can be closed only at night if it is necessary to construct a debris shield and for painting. One lane must remain open for non-rush hours during the day and both lanes must be open during rush hours. Any closure of the ramp must be coordinated with the airport. Four lanes of traffic along the parkway must be maintained during all weekday hours and for weekends preceding a holiday. Two lanes may be closed during non-holiday weekends. To maintain four lanes of traffic, temporary detours would need to be constructed by widening the southbound and northbound lanes along the shoulders behind the curb and median. The contractor would follow provisions for working near the airport such as restrictions on the use of lights for night work and maintaining the access to the airport. Lastly, the contractor would be required to keep the trails open at all times.

Coordination of Parkway Transportation Project. The Federal Highway Administration, working in close coordination with the National Park Service, would consider the potential short-term, adverse, cumulative impacts on traffic when scheduling construction projects on the parkway. Specifically, the traffic control and construction for the rehabilitation of the bridge over the north entrance to the airport, the Humpback Bridge replacement, new entrance to Columbia Island Marina, and any other road improvements need to be coordinated and scheduled to minimize the potential cumulative effects on traffic congestion on the parkway.

Natural Resources

Replacement of Vegetation. The National Park Service would replace the native vegetation affected by the construction of the bridge extension (or new bridge) and realignment of the trail. The native vegetation would be replaced with the same or similar native species in a manner consistent with the parkway's standards for landscaping.

Use of Best Management Practices. Best Management Practices would be implemented by the contractor during construction. Soil compaction and disturbance would be kept to a minimal amount of space needed for construction activities. Appropriate sediment and erosion control measures (such as the installation silt fence and inlet protection) would be implemented to reduce soil erosion and runoff from the construction area. Disturbed soils would be revegetated according to Federal Highway Administration and any additional George Washington Memorial Parkway requirements for soil stabilization and revegetation including weed control measures. The contractor would implement measures to control fugitive dust during construction.

SUSTAINABILITY

The National Park Service has adopted the concept of sustainable design as a guiding principle of facility planning and development. The objectives of sustainability are to design park facilities to minimize adverse effects on natural and cultural values, to reflect their environmental setting, and to maintain and encourage biodiversity; to construct and retrofit facilities using energy-efficient materials and building techniques; to operate and maintain facilities to promote their sustainability; and to illustrate and promote conservation principles and practices through the sustainable design and ecologically sensitive use. Essentially, sustainability is living within the environment with the least impact on the environment.

The rehabilitation of the historic bridge over the north entrance to the airport subscribes to and supports the National Park Service's guiding principles on sustainability. The bridge rehabilitation would reuse the existing facestones to the extent practical. The replacement of the decking would extend the useful life of the bridge by 35 to 40 years. In comparison, total bridge replacement would not be the sustainable solution because the existing steel superstructure is structurally sound. The bridge extension would be designed and constructed to minimize the adverse effects on the cultural landscape and the native stone facing would be reflective of the character of the parkway. Overall, the bridge rehabilitation with shoulder extension is the sustainable solution when compared with the other alternatives because this alternative promotes making the best use of the existing materials and opportunities to improve the site while minimizing potential impacts on the natural and cultural environment.

CONSTRUCTION COST AND SCHEDULE

The cost of the project is estimated to be \$2.64 million. The National Park Service plans to perform the construction in the Fiscal Year 2004 timeframe.

ALTERNATIVES CONSIDERED BUT DISMISSED

Two action alternatives and the No-Action alternative were retained for further analysis in this Environmental Assessment; however, a number of other alternatives were considered during the planning stages and project scope development for this project. Major alternatives considered, but dismissed, and the reasoning for their dismissal, are provided below.

Partial Depth Removal of Decking. The result of a geotechnical investigation of the bridge surface did not support only partially removing the decking; therefore, this option was not sustainable or feasible, and was dismissed from further consideration.

Construction of a New Road Bridge. Construction of a new road bridge in place of the existing structure was dismissed because the existing superstructure is structurally sound; therefore, this alternative would not be the least environmental damaging or cost-effective alternative.

Relocation of the Mount Vernon Trail. Relocation of the trail in this location is limited because of the trail's close proximity to the airport and railroad bridge; therefore, relocating the trail to another location away from the bridge is not practical and, therefore, was dismissed as a feasible alternative.

IMPACT COMPARISON MATRIX

Table 1 compares and contrasts each of the alternatives, including the degree to which each alternative accomplishes the purpose or fulfills the need identified in the Purpose and Need section. Table 2 presents impacts of the project alternatives, including the No-Action Alternative, for comparative purposes, and a concise summary of each alternative's potential effects by impact topic.

TABLE 1: COMPARATIVE SUMMARY OF THE NO-ACTION AND ACTION ALTERNATIVES

Alternative A (No-Action Alternative)	Alternative B Bridge Rehabilitation with Extension for Trail Realignment (Preferred Alternative)	Alternative C Bridge Rehabilitation with New Trail Bridge
<p>Under Alternative A, the National Park Service would continue management actions that would include minimum rehabilitation of the bridge to maintain the existing integrity and character of the historic structure. The National Park Service would conduct minor repairs to maintain the bridge and road surface so that the bridge remains operational and safe. The National Park Service would not replace and upgrade other features on the bridge such as guardrails and bridge railings. Rehabilitation of the bridge exterior appearance, such as recapping facestones and painting the bridge beams, would not occur. The Mount Vernon trail would continue to be on the shoulder of the bridge and remain approximately 3 feet from the vehicular traffic on George Washington Memorial Parkway.</p> <p>Meets Project Objectives?</p> <p>The No-Action Alternative does not fulfill the project objectives: rehabilitation of the transportation infrastructure and added safety improvements for trail users. Under the No-Action Alternative, only minor rehabilitation of the bridge would be conducted, as needed, which does not assure long-term preservation and the trail would continue to be located on the unprotected shoulder of the bridge in close proximity to the roadway.</p>	<p>Under Alternative B, the National Park Service would rehabilitate the historic bridge on the George Washington Memorial Parkway over the north entrance to Ronald Reagan Washington National Airport. The major project components include the replacement of the bridge decking, replacement of guardrails and railings, and construction of a shoulder extension (effectively widening the bridge by 15 feet) to realign the Mount Vernon Trail. A stone-faced parapet barrier wall would be constructed between the trail and the highway.</p> <p>Meets Project Objectives?</p> <p>Alternative B fulfills the project objectives because the rehabilitation would extend the useful life of the bridge by 35 to 40 years and the shoulder extension addresses the safety concerns present because of the trail's close proximity to the roadway. The bridge rehabilitation also offers benefits in resource enhancement by restoring or replacing certain stylistic elements of the original bridge design such as the stone facing.</p>	<p>Under Alternative C, the National Park Service would rehabilitate the historic bridge on the George Washington Memorial Parkway over the north entrance to Ronald Reagan Washington National Airport. The major project components of Alternative C include the replacement of the bridge decking, replacement of guardrails and railings, and the construction of a new trail bridge. The National Park Service would slightly realign asphalt trails at the bridge to tie into the new trail bridge that would separate the trail from the roadway.</p> <p>Meets Project Objectives?</p> <p>Alternative C fulfills the project objectives of extending the useful life of the bridge and addresses safety concerns; however, Alternative C does not meet the objective to minimize impacts to the parkway resources. Alternative C would have adverse impacts to the historic integrity of the bridge and cultural landscape. Alternative C would have an adverse impact to the views of the stylistic elements (stone facing) of the original bridge design because of the construction of the new trail bridge.</p>

TABLE 2: COMPARATIVE SUMMARY OF POTENTIAL ENVIRONMENTAL IMPACTS

Impact Topic	Alternative A No-Action Alternative	Alternative B Bridge Rehabilitation with Extension For Trail Realignment	Alternative C Bridge Rehabilitation with New Trail Bridge
Historic Structures/Sites	The No-Action Alternative would have no adverse impacts on historic resources because the National Park Service would maintain the historic integrity of the bridge near its existing state. Eventually, the bridge deck would require replacement or the structure would have to be closed because the structure cannot be maintained indefinitely with minor bridge repairs. No cumulative effect would occur.	The rehabilitation of the bridge would have minor, long-term, beneficial impacts because of the restoration of the stone facing on the bridge façade and the replacement of the decking, which would extend the useful life of the bridge. The replacement of bridge railings and guardrails would have a negligible, long-term, adverse impact to the historic integrity of the bridge. A minor, long-term, adverse cumulative effect would occur.	The construction of the new trail bridge adjacent to the historic structure would have a moderate, long-term, adverse impact on historic structure because the trail bridge would shield and diminish the stone face façade, which is the character-defining feature of the bridge and the parkway. The replacement of bridge railings and guardrails would have a negligible, long-term, adverse impact to the historic integrity of the bridge. A minor, long-term, adverse cumulative effect would occur.
Cultural Landscapes	The No-Action Alternative would have no impact on the cultural landscape because the National Park Service would perform minor spot repairs to maintain the bridge appearance near its existing state. Eventually, the bridge deck would require replacement or the structure would have to be closed. There would be no cumulative effect.	Alternative B would have a negligible, long-term, adverse impact on the cultural landscape because minor alterations and changes to the bridge footprint are not representative of the context and setting of the original bridge. The replacement of bridge railings and guardrails would have a negligible, long-term, adverse impact to the cultural landscape. No cumulative effect would occur.	Alternative C would have a minor, long-term, adverse impact on the cultural landscape because of the placement of the new trail bridge adjacent to a contributing element to the parkway's cultural landscape. The replacement of bridge railings and guardrails would have a negligible, long-term, adverse impact to the cultural landscape. A minor, long-term, adverse cumulative effect would occur.
Aesthetics and Visual Resources	The No-Action Alternative would have minor, long-term, and adverse impact on aesthetics because the appearance of the bridge would continue to adversely impact the visual quality of the parkway at this location. A minor, long-term, adverse cumulative effect would occur.	A minor, long-term, beneficial impact would occur from the rehabilitation of the bridge because the improvements would improve the visual quality of the bridge. The replacement of the guardrails and railings and painting of the steel infrastructure would have a minor, long-term, beneficial impact on the aesthetic quality of the bridge. A minor, long-term, beneficial cumulative effect would occur.	A minor, long-term, adverse impact would occur from the new trail bridge because the improvements would diminish the visual quality of the stone facing on the existing bridge, which is a character-defining feature of the parkway bridges. The replacement of the guardrails and railings and painting of the steel infrastructure would have a minor, long-term, beneficial impact on the aesthetic quality of the bridge. A minor, long-term, adverse, cumulative effect would occur.

Impact Topic	Alternative A No-Action Alternative	Alternative B Bridge Rehabilitation with Extension For Trail Realignment	Alternative C Bridge Rehabilitation with New Trail Bridge
Health and Safety	The No-Action Alternative would have moderate, long-term, adverse impacts to public safety because the trail users would continue to be close to the northbound traffic on the parkway and guardrails would continue to be below the recommend safe height. No adverse cumulative effects would occur.	Alternative B would have moderate, long-term, beneficial impacts on health and safety because of the implementation of numerous safety improvements on the bridge. Minor, short-term, adverse impact could occur during construction because of changes to rerouting of vehicular traffic, temporary trail closures, and nearby construction activities. A moderate, long-term, beneficial, cumulative effect would occur.	Alternative C would have moderate, long-term, beneficial impacts on health and safety because of the implementation of numerous safety improvements on the bridge. Minor, short-term, adverse impact could occur during construction because of changes to rerouting of vehicular traffic, temporary trail closures and nearby construction activities. A moderate long-term, beneficial, cumulative effect would occur.
Vegetation	There would be no impact on vegetation. No cumulative effects would occur.	Alternative B would have minor, short-term, adverse impacts on vegetation because of the removal of trees and shrubs for construction of the bridge extensions. A minor, short-term, adverse, cumulative effect would occur.	Alternative C would have minor, short-term, adverse impacts on vegetation because of the removal of trees and shrubs for construction of the new trail bridge. A minor, short-term, adverse, cumulative effect would occur.
Transportation (Traffic)	Implementation of the No-Action Alternative would have no short-term impacts on traffic; however, it may have long-term implications if the bridge decking failed and potholes persisted. No cumulative effects would occur.	The bridge rehabilitation would have minor, long-term, beneficial impacts on transportation because of improvements to the bridge to sustain the bridge for future use by motorists on the parkway. With the implementation of mitigation measures, a minor, short-term, adverse impact would occur from added delays caused from traffic control necessary for construction. A moderate, long-term, beneficial, cumulative effect would occur on transportation.	
Visitor Use and Experience	Under the No-Action Alternative, the visitor experience would continue to be impacted by the trail's close proximity to the roadway; thus, a minor long-term, adverse impact would occur. No cumulative impacts would occur.	Alternative B would have a minor, long-term, beneficial impact because of the added sense of protection from the shoulder extension and trail realignment. Minor, short, adverse impacts would occur because of trail detours and vehicular delays during construction. A minor, long-term, beneficial cumulative effect would occur.	Alternative C would have a minor, long-term, beneficial impact because of the added sense of protection from new trail bridge. Minor, short, adverse impacts would occur because of trail detours and vehicular delays during construction. A minor, long-term, beneficial cumulative effect would occur.

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AFFECTED ENVIRONMENT

Detailed information on resources may be found in the *Resource Management Plan, George Washington Memorial Parkway- 1994* (NPS 1994). A summary of the resources identified as impact topics associated with this project follows.

CULTURAL RESOURCES

Cultural resources for the purposes of this Environmental Assessment are further characterized as historic structures/sites, archeological resources, and cultural landscapes.

“Historic properties,” as defined by the implementing regulations of the National Historic Preservation Act (36 CFR 800), are defined as any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places. This term includes artifacts, records, and the remains that are related to and located within such properties, as well as traditional and culturally significant Native American sites and historic landscapes. The term “eligible for inclusion in the National Register” includes both properties formally determined eligible and all other properties that meet National Register listing criteria.

The significance of historic properties is generally judged against a property's ability to meet the four criteria for inclusion on the National Register of Historic Places (36 CFR 60):

- Association with events that have made a significant contribution to the broad patterns of our history; or
- Association with the lives of persons significant in our past; or
- That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- That has yielded, or may be likely to yield, information important in prehistory or history.

Properties may be eligible for the National Register for contributions at the national, state, or local level. Ordinarily, properties achieving significance within the last 50 years are not considered eligible unless they are integral parts of historic districts or unless they are of exceptional importance. The most common types of properties less than 50 years old listed on the National Register are works of modern architecture or scientific facilities. Additionally, in order for a structure or building to be listed in the National Register, it must possess historic integrity of those features necessary to convey its significance (i.e., location, design, setting, workmanship, materials, feeling, and association see National Register Bulletin #15, *How to Apply the National Register Criteria for Evaluation* (NPS, 1990).

HISTORIC STRUCTURES/SITES

The George Washington Memorial Parkway was established in 1930 by the U.S. Congress as a memorial to George Washington. The Parkway was transferred from the Office of Public Buildings and Public Works of the National Capital to the National Park Service on August 10, 1933 (The National Parks: Index 2001-2003). The Mount Vernon Memorial Highway (constructed in 1932) is the initial portion of the George Washington Memorial Parkway that links the southwestern end of Arlington Memorial Bridge on Columbia Island and Washington, DC, with Mount Vernon in Fairfax County, Virginia. The route roughly parallels the Potomac River. The highway was designed and landscaped to maximize scenic, aesthetic, and commemorative qualities and today retains much of its intended character (NPS GWMP, 1981). This portion of the George Washington Memorial Parkway was listed on the National Register of Historic Places in 1981. The remaining portions of the George Washington Memorial Parkway were listed on the National Register in 1995.

The Mount Vernon Memorial Highway is significant because it is the first parkway constructed and maintained by the U.S. Government. The highway opened in 1932 to commemorate the bicentennial of George Washington's birthday. The Mount Vernon Memorial Highway represented state of the art technology in parkway design in the 1930s. It was the work that set the standard for many Federal parkway projects to follow, such as Skyline Drive, Blue Ridge Parkway, and the adjoining George Washington Memorial Parkway (NPS GWMP, no date). Through its location paralleling the Potomac River, the Mount Vernon Memorial Highway contributed to the establishment of a regional park system, provided protection to the shorelines of the Potomac River from private encroachment, and preserved the lands for public enjoyment (NPS GWMP, no date).

The eight stone-faced bridges on the original Mount Vernon Memorial Highway are the most highly visible structures on the parkway (NPS GWMP, no date). Each bridge received careful attention to design as their design established the character of the entire Mount Vernon Memorial Highway. The elevation of each bridge was designed by Gilmore Clarke. Clarke was the Mount Vernon Highway's consulting landscape architect who at the time was the state of New York's only civil servant titled "Landscape Architect." "Clarke's elevation designs suggested native stone, segmental arches that were intentionally timeless and astylistic. They were intended to harmonize with their surroundings, not dominate them" (NPS GWMP, no date). Clarke preferred natural materials and vernacular forms, rather than industrial imagery and manufactured materials (NPS GWMP, no date). It seemed Clarke made a point not to make any distinct feature to each bridge but rather to have all of them similar in lasting character. In colonial days, there was no precedent to build stone bridges; thus, the stonework dictates a definite style to the bridges and Clarke's contribution to the design (NPS GWMP, no date).

The bridge over the north entrance to the airport is not an original feature of the 1932 Mount Vernon Memorial Highway. The bridge was constructed in 1941, when the Mount Vernon Memorial Highway was realigned to accommodate the expansion of the airport; however, the bridge's stone face still maintains astylistic elements of the highway's 1932 original construction (NPS GWMP, 2002). As a result, the bridge over the north entrance to the airport is a contributing element to the parkway's National Register nomination and the Mount Vernon Memorial Highway cultural landscape.

The first major change in the highway alignment occurred in 1939 in connection with the expansion of the Gravelly Point Airport, which became Washington National Airport. Today, the airport is known as Ronald Reagan Washington National Airport. A 1-mile segment was realigned to allow for westward expansion of the airport between Roaches Run and Four Mile Run. This alignment change around the airport has had some of the greatest effects on the original design of the highway. The new location is farther away from the Potomac River and coupled with the expanded facilities associated with the airport, dramatically changed the views of this portion of the highway. One of the results of the highway realignment was the construction of the grade-separated bridge over the north entrance to the airport. The road was relocated around the airport in November 1939, and approximately a year later, the north access road bridge construction began and the revised access roads were completed in 1941. Today, the historic bridge still maintains the astylistic characteristics of the native stone face, which is characteristic of Clarke's early design elements for the eight original bridges on the Mount Vernon Memorial Highway in 1932.

In addition to the George Washington Memorial Parkway listing on the National Register of Historic Places, the project area has a number of historic, commemorative, and cultural resources in the immediate vicinity. Historic resources at the National Airport Complex include the Main Terminal and South Hangar Line, Abington Plantation Ruins, and Abington Research Center. There are numerous other historic resources such as Arlington National Cemetery, Arlington House, Robert E. Lee Memorial, U.S. Marine Corps War Memorial, the Pentagon, Lincoln Memorial, Jefferson Memorial, and the National Mall Historic District. These historic resources are all outside the area of potential effect for the project because the views to and from the bridge are shielded by the airport, vegetation, and existing topography.

CULTURAL LANDSCAPES

A cultural landscape is a geographic area, including both cultural and natural resources and the wildlife and domestic animals therein, associated with a historic event, activity, or person or exhibiting other cultural or aesthetic value. There are four general kinds of cultural landscapes; Historic Sites, Historic Designed Landscapes, Historic Vernacular Landscapes and Ethnographic Landscape (DO28, p. 179, 2002). The Mount Vernon Memorial Highway is a Historic Designed Landscapes. The National Park Service's Mount Vernon Memorial Highway Cultural Landscapes Report described the landscape as: "Roadway alignment, topography, planting, vistas, and parkway structures were the landscape elements employed by the Highway designer to achieve the desired 'memorial character.' Through the manipulation of these elements, the Highway's designers were able to translate the vision of a half century into a commemorative landscape that was both beautiful and functional, poetic and rational."

The cultural landscape report for the Mount Vernon Memorial Highway divides the parkway into four segments for discussion of the parkway features and characteristics. The historic bridge over the north entrance to the airport lies within the segment from Gravelly Point to south of the airport. The cultural landscape report identifies this stretch of roadway to be the least historic, sylvan, or riparian in character mostly because of the airport expansion resulting in the roadway relocation and Crystal City's dense urban skyline paralleling the highway from Roaches Run to just north of Four Mile Run (NPS GWMP, no date).

The early plantings along this segment had two associations: wetland species tolerant of reclaimed, poor soils and woodland understory and canopy trees (NPS GWMP, no date). The trees tolerant of the poor soils included *Ulmus*, *Liriodendro*, and *Quercus* species, which were planted in informal single species clumps set back from the roadway. The other woodland plantings included *Fagus americana*, *Ulmus americana*, *Quercus palustris*, *Acer rubrum*, and *Platanus orientalis* (NPS GWMP, no date). Over the last 5 years, numerous capital improvements project such as the new pedestrian bridges and transportation improvements have included the installation of additional trees and shrubs near the airport.

Other defining features of the parkway's landscape include the concrete curb and combination concrete curb and gutter. The highway roadbed was carefully engineered to drain surface water away from the landform. The curbs and gutters with their related drainage grates were an integral part of that system. The curbs and gutters were typically mountable but their 3-inch height discourages driving off the roadway (NPS GWMP, no date). As discussed previously under Historic Structures/Sites, eight stone-faced bridges were a defining feature of the original highway's landscape. Today, these bridges, coupled with a few newer bridges, constructed consistent with the existing parkway character are integral to the experience of the parkway.

AESTHETICS AND VISUAL RESOURCES

Aesthetics and visual resources are those natural and cultural features of the environment that elicit one or more sensory reactions and evaluations by the observer, particularly in regards to pleasurable effects (Canter, 1996). The George Washington Memorial Parkway has been designed in a manner that promotes vistas of many of the cultural and natural elements along the parkway, such as the rocky outcrops along the Potomac River and the many monuments in Washington, DC. In the area of the bridge over the north entrance to the airport, the aesthetic quality of the parkway is diminished by the presence of the airport (see Figure 10). Near the bridge over the north entrance to the airport, topography, sound barrier/noise walls, the airport terminal, and vegetation block most of the views to the Potomac River and nearby monuments. Visitors must travel past either end of the airport to observe the scenic vistas of the monuments on the other side of the Potomac River.



Figure 10. View of the airport from the top of the bridge

The bridge abutment wingwall stonework and steel beams are representative of some of the earlier architectural elements of the parkway. The consistency in design and architectural elements such as the stonework and landscaping gives the parkway an aesthetic appeal unlike other roadways in the Washington, DC, metropolitan area. Figure 11 is a photograph taken in August 2003 that depicts the astylistic stonework of the bridge. In addition to the architectural features, the parkway is a well-maintained landscape designed to promote the natural resources surrounding the parkway. Currently, the condition of the bridge (rust on the steel beams and deteriorating condition of the railings, pavement, and guardrails) is not consistent with aesthetic qualities typical of the parkway.



Figure 11. Photograph of stonework on the bridge abutment wingwall and parapet barrier wall

HEALTH AND SAFETY

In 1998, the National Park Service commissioned Robert Peccia and Associates to conduct a traffic safety study for the parkway. The report does not identify the southbound north access road to the airport as a high accident area. The nearby northbound north access road entrance to the airport is identified as one of the top 24 highest accident sites (ranked 17th with 24 total accidents between 1994 and 1996 on the parkway). Sixteen of the accidents were property damage and there were only eight reported injury accidents. Since the report, a pedestrian bridge has been constructed to provide trail users a grade-separated (elevated) crossing over the access road. These safety improvements have improved conditions at this entrance.

One of the safety concerns in the project area is the trail's close proximity to the northbound lanes on the parkway. Figure 12 shows the proximity of the asphalt trail to the northbound lane on the George Washington Memorial Parkway. The path is unprotected by any barriers or guardrails and is only separated by about 3 feet of grass median.



Figure 12. Photograph showing the proximity of the trail to the roadway

VEGETATION

Vegetation along the parkway near the bridge generally consists primarily of grasses and both planted and invasive trees and shrubs along the sidewalks and roadside. Some of the native species present include eastern white pine (*Pinus strobus*), black locust (*Robinia pseudoaccacia*), elm (*Ulmus* sp.), and eastern red cedar (*Juniperus virginiana*). Non-native woody species include tree-of-heaven (*Ailanthus altissima*) and Japanese honeysuckle (*Lonicera japonica*). Figure 13 shows the vegetation on the northbound side of the parkway near the airport.



Figure 13. Photograph of vegetation near the trail and bridge

TRANSPORTATION

Roadway Characteristics - The Mount Vernon Memorial Highway section of the George Washington Memorial Parkway is located entirely within Virginia and generally parallels the Potomac River. The parkway mainline carries four lanes of traffic, and has a 13-foot wide shoulder from curb to parapet wall on both northbound and southbound sides, composed of asphalt and concrete, and a curbed grass median with double-faced weathering steel guardrails. Both sides of the bridge have stone parapet walls on the oncoming traffic and trailing sides except in the middle, which is steel railing (FHWA, 1999). The roadside environment or clear zone generally consists of well-maintained and landscaped areas. On the Mount Vernon Memorial Highway portion of the parkway, the clear zone generally consists of more trees and vegetation, which, in some cases, limit site distance. At the bridge over the north entrance to the airport, trees and other vegetation exist just outside the trail on the northbound side of the parkway near the airport (Pecchia, 1998).

Underneath the bridge is a two lane, one-way roadway providing access to Ronald Reagan Washington National Airport. Also underneath the bridge is a pedestrian/bicycle trail. The trail is separated from the roadway by a stone guard wall. The portion of the trail under the bridge has lighting, although the lights were not 100 percent functional at the time of the bridge inspection. This trail provides access for pedestrians and bicyclists to Crystal City.

Bridge Condition-The Federal Lands Highway Division provides highway and bridge design, construction, and inspection services for the National Park Service, nationwide. The Bridge Inspection and Management Program staff help to manage the bridge inventory for all National Park Service areas in compliance with the National Bridge Inspection Standards. As part of this program, the Federal Lands Highway Division conducted a bridge inspection on April 29, 1999, that determined the bridge to be in fair condition because of extensive deterioration of the concrete deck and severe rusting of the structural steel superstructure (FHWA, 1999).

The report also noted that the guardrails are well below the recommended height for traffic barriers and several rail posts are severely spalled and the guardrails and railings do not meet current crash test standards. The estimated useful life of the existing super structure is 35 to 40 years (FHWA, 1999). Figure 5 shows the rusting of the bridge and the area in need of painting and Figure 14 depicts the condition and height of the guardrails.



Figure 14. Photograph of guardrail

Traffic Counts and Level of Service - Traffic volume data is typically a good indicator of the vehicular utilization of the roadway. In the 1998 Traffic Safety Study, the portion of the parkway between the Memorial Bridge and Airport was identified as the most heavily traveled portion of the parkway (Pecchia, 1998). Traffic data for the last year was obtained for the parkway at the north entrance to the airport. The peak traffic volumes for the ramp into the airport were highest

during the morning and evening rush hours as expected. For the impact analysis, the National Park Service examined potential delays during non-rush hours. For this project, the Federal Highway Administration defined rush hours as 5:30 a.m. to 10:00 a.m. and 3:00 p.m. to 7:00 p.m. Monday through Friday (except holidays). Construction related delays from lane closures would only occur during non-rush hours except for the construction of the new abutments, which would require one-lane closures for extended periods. The ramp volumes (both lanes) during non-rush hour are rarely expected to exceed the ramp capacity. During non-rush hours, the peak vehicle per hour volumes occur on Fridays, between 10:00 a.m. and 3:00 p.m. The highest hourly volume for September 2003 for the two lanes was 1,280 vehicles per hour.

The *Traffic Safety Study* (Peccia, 1998) indicated the southbound lane of the parkway between the Theodore Roosevelt Bridge and National Airport operates at a LOS C during the a.m. peak period and LOS E during the p.m. peak period. These Levels of Service are likely the same for today's conditions; however, current Level of Service information was not calculated for this study because Level of Service generally takes into consideration traffic operations and delays during peak periods. This information would not be representative of traffic operations for the project because the proposed hours of operation for construction would occur during non-rush hours. For this study, the change in delay was calculated using 2003 hourly traffic volumes and a traffic model to help assess the potential impacts. The traffic analysis is described in the transportation impact section.

Pedestrian and Bicycle Facilities - The George Washington Memorial Parkway has an extensive linear network of trails. Near the airport, the Mount Vernon Trail is located on the northbound shoulder where the trail transects the bridge. The asphalt path is 8 feet wide and the location of the trail is less than 3 feet at its closest point to the highway (NPS, 1999). The Mount Vernon Trail is 18.5 miles in length and connects from Mount Vernon to a point just north of Theodore Roosevelt Island. The trail is a nearly continuous asphalt path with a number of elevated pedestrian bridges. Two such bridges exist in front of the airport to provide for grade separation over an access road and Metro rail line.

VISITOR USE AND EXPERIENCE

In fiscal year 2002, the George Washington Memorial Parkway totaled 7,356,179 recreational visits (NPS, 2003). The parkway is open all year round, with the highest visitation in the spring and fall. The typical visitor experience includes travel to many of the historical, natural, or recreational areas along the parkway by either automobile on the roadway or by foot or bicycle on the linear trail network. The travel is highlighted by the many scenic vistas. The parkway provides visitors and residents of the area a scenic, historic, and recreational setting that offers a respite from the urban pressures of a metropolitan area. Recreational activities along the parkway include, but are not limited to fishing, picnicking, bird watching, kayaking and canoeing, jogging, bicycling, hiking, educational nature walks, and auto touring. In the area of the parkway near the bridge, the primary visitor use is jogging, bicycling, and walking on the Mount Vernon Trail, and automobile travel on the roadway.

ENVIRONMENTAL CONSEQUENCES

INTRODUCTION

This section describes the environmental consequences associated with each alternative to the proposed action. It is organized by impact topics, which refine the issues and concerns into distinct topics for discussion analysis. These topics allow a standardized comparison between the alternatives based on their impact to the environment. The National Environmental Policy Act of 1969 requires consideration of type, context, intensity, and duration of direct, indirect, and cumulative impacts plus measures to mitigate the impacts. Direct or indirect effects are assessed in this document; although they may not be specifically labeled as direct or indirect. Cumulative impacts are identified separately. National Park Service policy also requires that “impairment” of park resources be evaluated in all environmental documents.

METHODOLOGY FOR ASSESSING IMPACTS

Potential impacts are described in terms of:

- Type - are the effects beneficial or adverse,
- Context - are the effects site-specific, local, or regional,
- Duration - are the effects short-term or long-term, and
- Intensity - are the effects negligible, minor, moderate, or major.

In this Environmental Assessment, the intensity of impacts is evaluated within a local (i.e., the project area) context, while the intensity of the contribution of effects to cumulative effects is evaluated in a regional (i.e., parkway) context. Because definitions of intensity (negligible, minor, moderate, major) vary by impact topic, intensity definitions are provided separately for each impact topic analyzed in this Environmental Assessment. In addition, the duration of the impact is analyzed independently for each resource because the impact duration is dependent on the resource being analyzed. Depending on the resource, impacts may last as long as construction takes place or a single year or growing season or longer. In general, impacts were determined through consultation and collaboration of a multidiscipline team of National Park Service, Federal Highway Administration and consultant professional staff. In addition, regulatory agency consultation and other existing sources such as any existing literature or park planning documents were used to assess the potential impact associated with each alternative.

CUMULATIVE EFFECTS

The Council on Environmental Quality regulations, which implement the National Environmental Policy Act, requires assessment of cumulative impacts in the decision-making process for federally funded projects. Cumulative impacts are defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-

Federal) or person undertakes such other actions” (40 CFR 1508.7). Cumulative effects can result from individually minor, but collectively moderate or major actions taking place over a period of time. Cumulative effects are considered for all alternatives and are presented at the end of each impact topic discussion analysis.

Cumulative effects were determined by combining the impacts of the proposed alternatives with other past, present, and reasonable foreseeable future actions. Therefore, it was necessary to identify other past, ongoing, or foreseeable future projects at George Washington Memorial Parkway and, if necessary, the surrounding region. Cumulative effects are evaluated in a regional context, which varies for each impact topic; however, in general, the regional context is the parkway the Humpback Bridge Bridge/Columbia Island Marina to the west, the Potomac River to the north, Dangerfield Island/Washington Sailing Marina to the east and the skyline properties in Crystal City abutting the parkway to the south. Future projects that may have the potential to add to cumulative effects include the Humpback Bridge replacement and new entrance to Columbia Island Marina, National Airport capital improvement projects, and holiday and special events on the parkway.

PROJECTS THAT MAKE UP THE CUMULATIVE IMPACT SCENARIO

As part of the analysis and consideration of potential cumulative impacts, other past, present, and reasonably foreseeable projects were identified. For each project, the National Park Service considered the potential cumulative effect when combined with the potential impacts of the bridge rehabilitation. A brief overview of the projects identified in the regional context for cumulative impact scenario described previously follows. Projects that have the potential for cumulative effects are discussed further in the impact analysis.

- **Humpback Bridge Replacement and New Entrance to Columbia Island Marina.** A number of operational and design deficiencies have been identified in the 14th Street Bridge corridor. As a result of the deficiencies, this area experiences a high frequency of accidents. In March 2002, the Federal Highway Administration in cooperation with the National Park Service completed an Environmental Assessment for Roadway and Trail Safety Improvements on the George Washington Memorial Parkway. In the Environmental Assessment, the Federal Highway Administration and National Park Service proposed to modify the existing access ramps, roadway, pedestrian/bicycle trails and parking area to correct the design deficiencies and satisfy safety concerns. The preferred alternative includes replacing the Humpback Bridge and making improvements to the entrance to the Columbia Island Marina (FHWA, 2002).
- **Capital Improvement Projects at Ronald Reagan Washington National Airport.** Past, present, and future projects at the airport have and could continue to have adverse or beneficial impacts on the surrounding areas. In the vicinity of the historic bridge, the installation of sound barriers/walls, construction of new trail bridges, and roadway and parking lot improvements have occurred, some of which have had some impacts (adverse and beneficial) on the parkway, Mount Vernon Trail, and nearby resources.
- **Independence Day and Other Special Events.** The George Washington Memorial Parkway is host to a number of celebratory events during holidays, the largest of which is Inde-

pendence Day. The parkway provides an excellent area for visitors to watch the annual Fourth of July fireworks celebration.

IMPAIRMENT TO PARK RESOURCES AND VALUES

In addition to determining the environmental consequences of the preferred and other alternatives, the National Park Service's *Management Policies, 2001* (NPS, 2000) require analysis of potential effects to determine whether or not actions would impair park resources. The fundamental purpose of the National Park System, established by the Organic Act and reaffirmed by the General Authorities Act, as amended, begins with a mandate to conserve park resources and values. National Park Service managers must always seek ways to avoid, or to minimize to the greatest degree practicable, adversely impacting park resources and values. However, the laws do give the National Park Service the management discretion to allow impacts to park resources and values when necessary and as appropriate to fulfill the purposes of a park, as long as the impact does not constitute impairment of the affected resources and values. Although Congress has given the National Park Service the management discretion to allow certain impacts, that discretion is limited by the statutory requirement that the National Park Service must leave park resources and values unimpaired, unless a particular law directly and specifically provides otherwise. The prohibited impairment is an impact that, in the professional judgment of the National Park Service manager, would harm the integrity of park resources or values, including opportunities that otherwise would be present for the enjoyment of those resources and values. An impact to any park resource or value may constitute an impairment, but an impact would be more likely to constitute an impairment to the extent that it has a major or severe adverse effect upon a resource or value whose conservation is:

- necessary to fulfill specific purposes identified in the enabling legislation or proclamation of the park;
- key to the natural or cultural resources integrity of the park or to opportunities for enjoyment of the park; or
- identified as a goal in the park's General Management Plan or other relevant National Park Service planning documents.

Impairment may result from National Park Service activities in managing the park, visitor activities, or activities undertaken by concessionaires, contractors, and others operating in the park. In this chapter, a determination on impairment is made in the conclusion statement of each alternative. The National Park Service does not analyze recreational values/visitor use and experience (unless impacts are resource based), socio-economics, or park operations for impairment.

IMPACTS TO CULTURAL RESOURCES AND SECTION 106 OF THE NATIONAL HISTORIC PRESERVATION ACT

In this Environmental Assessment, impacts to historic structures and cultural landscapes are described in terms of type, context, duration, and intensity, which is consistent with the Council on Environmental Quality regulations for implementing the National Environmental Policy Act.

These impact analyses are intended, however, to comply with the requirements of both the National Environmental Policy Act and Section 106 of the National Historic Preservation Act. In accordance with the Advisory Council on Historic Preservation's regulations implementing Section 106 (36 CFR Part 800, *Protection of Historic Properties*), impacts to historic structures, cultural landscapes, and archeological resources were identified and evaluated by: (1) determining the area of potential effects; (2) identifying cultural resources present in the area of potential effects that are either listed in or eligible to be listed in the National Register of Historic Places; (3) applying the criteria of adverse effect to affected cultural resources either listed in or eligible to be listed in the National Register; and (4) considering ways to avoid, minimize, or mitigate adverse effects.

Under the Advisory Council's regulations, a determination of either *adverse effect* or *no adverse effect* must be made for affected National Register eligible cultural resources. An *adverse effect* occurs whenever an impact alters, directly or indirectly, any characteristic of a cultural resource that qualifies it for inclusion in the National Register (e.g., diminishing the integrity of the resource's location, design, setting, materials, workmanship, feeling, or association). Adverse effects also include reasonably foreseeable effects caused by the preferred alternative that would occur later in time, be farther removed in distance, or be cumulative (36 CFR 800.5, *Assessment of Adverse Effects*). A determination of *no adverse effect* means there is an effect, but the effect would not diminish in any way the characteristics of the cultural resource that qualify it for inclusion in the National Register.

The Council on Environmental Quality's regulations and the National Park Service's *Conservation Planning, Environmental Impact Analysis and Decision-making* (Director's Order #12) also call for a discussion of the appropriateness of mitigation, as well as an analysis of how effective the mitigation would be in reducing the intensity of a potential impact (e.g., reducing the intensity of an impact from major to moderate or minor). Any resultant reduction in intensity of impact due to mitigation, however, is an estimate of the effectiveness of mitigation under the National Environmental Policy Act only. It does not suggest that the level of effect as defined by Section 106 is similarly reduced. Cultural resources are non-renewable resources and adverse effects generally consume, diminish, or destroy the original historic materials or form, resulting in a loss in the integrity of the resource that can never be recovered. Therefore, although actions determined to have an adverse effect under Section 106 may be mitigated, the effect remains adverse.

A Section 106 summary is included in the impact analysis sections for historic structures/sites and cultural landscapes. The Section 106 summary is intended to meet the requirements of Section 106 and is an assessment of the effect of the undertaking (implementation of the alternative) on cultural resources, based upon the criterion of effect and criteria of adverse effect found in the Advisory Council's regulations.

IMPACTS ON HISTORIC STRUCTURES/SITES

DEFINITION OF INTENSITY LEVELS

In order for a structure or building to be listed in the National Register of Historic Places, it must meet one or more of the following criteria of significance: associated with events that have made

a significant contribution to the broad patterns of our history; associated with the lives of persons significant in our past; embody the distinctive characteristics of a type, period, or method of construction, or represent the work of a master, or possess high artistic value, or represent a significant and distinguishable entity whose components may lack individual distinction; or have yielded, or may be likely to yield, information important in prehistory or history. In addition, the structure or building must possess integrity of location, design, setting, materials, workmanship, feeling, and association (*National Register Bulletin, How to Apply the National Register Criteria for Evaluation*). For purposes of analyzing potential impacts to historic structures/sites, the thresholds of change for the intensity of an impact are defined as follows:

- *negligible*: Impact(s) is at the lowest levels of detection - barely measurable with no perceptible consequences, either adverse or beneficial. For purposes of Section 106, the determination of effect would be *no adverse effect*.
- *minor*: Adverse impact - impact would alter a feature(s) of a structure or building, but would not diminish the overall integrity of the resource. For purposes of Section 106, the determination of effect would be *no adverse effect*. Beneficial impact - stabilization/preservation of features in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties*. For purposes of Section 106, the determination of effect would be *no adverse effect*.
- *moderate*: Adverse impact - impact would alter a feature(s) of the structure or building, diminishing the overall integrity of the resource. For purposes of Section 106, the determination of effect would be *adverse effect*. A Memorandum of Agreement is executed among the National Park Service and applicable state or tribal historic preservation officer and, if necessary, the Advisory Council on Historic Preservation in accordance with 36 CFR 800.6(b). The mitigation measures identified in the Memorandum of Agreement reduce the intensity of impact from major to moderate. Beneficial impact - rehabilitation of a structure or building in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties*. For purposes of Section 106, the determination of effect would be *no adverse effect*.
- *major*: Adverse impact - impact would alter a feature(s) of the structure or building, diminishing the overall integrity of the resource. For purposes of Section 106, the determination of effect would be *adverse effect*. The National Park Service and applicable state or tribal historic preservation officer are unable to negotiate and execute a Memorandum of Agreement in accordance with 36 CFR 800.6(b). Beneficial impact - restoration of a structure or building in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties*. For purposes of Section 106, the determination of effect would be *no adverse effect*.

Duration: Short-term – Effects lasting for the duration of the construction activities (less than 1 year); Long-term – Effects lasting longer than the duration of the construction (longer than 1 year).

ALTERNATIVE A - NO-ACTION ALTERNATIVE

Under the No-Action Alternative, the National Park Service would continue management actions that would include minor repairs of the bridge to maintain the existing integrity and character of the historic structure. A more inclusive rehabilitation effort to improve and restore the bridge exterior appearance such as recapping facestones and painting the bridge beams would not occur. The Mount Vernon Trail would continue to be located on the shoulder of the bridge, and the bridge would not be extended. Implementation of the No-Action Alternative would have no impact on historic structures/sites because the National Park Service would maintain the bridge similar to its existing condition through minimum rehabilitation and maintenance efforts. Eventually, the bridge deck would require replacement or the structure would have to be closed because the structure cannot be maintained indefinitely with minor bridge repairs. The No-Action Alternative would not effect nearby historic resources.

Cumulative Effects. No cumulative effect would occur because implementation of the No-Action Alternative would have no impact on historic structures/sites.

Conclusion. Under the No-Action Alternative, no impact on historic structures/sites is anticipated because the National Park Service would conduct minor repairs to maintain the existing integrity and character of the historic structure. Eventually, the bridge deck would require replacement or the structure would have to be closed because the structure cannot be maintained indefinitely with minor bridge repairs. Because there would be no major adverse impacts to resources or values whose conservation are: (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the George Washington Memorial Parkway; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the park's general management plan or other relevant National Park Service planning document, there would be no impairment of the park's resources or values.

ALTERNATIVE B - BRIDGE REHABILITATION WITH EXTENSION FOR TRAIL REALIGNMENT (PREFERRED ALTERNATIVE)

Under Alternative B, the National Park Service would rehabilitate the historic bridge. The major project components include the replacement of the bridge decking, repair of guardrails and railings, and construction of a shoulder extension (effectively widening the bridge by 15 feet) to realign the Mount Vernon Trail. The widening of the bridge would require the removal, salvage, and reconstruction of certain elements of the bridge on the east side. In addition, the National Park Service would paint the bridge beams; seal cracks and fix spalls on bridge abutment walls; reset capstones on the guardwall underneath the bridge; and replace and/or reset facestones on the bridge abutment wingwalls.

The removal, salvage, and reconstruction necessary for the bridge extension on the east side would have an adverse impact on the bridge's structural fabric. However, the rehabilitation is necessary to extend the useful life of the bridge and for safety reasons. The long-term, visual changes to local environs would be slight and rehabilitation would include maintaining the key defining feature (stonework) of the bridge; therefore, the character of the George Washington Memorial Parkway/Mount Vernon Memorial Highway would not be adversely impacted. All re-

habilitation work would be implemented in a manner consistent with the *Secretary of the Interior's Standards for the Treatment of Historic Properties*.

The stone facing is a key element defining the character of the original historic bridges along the Mount Vernon Memorial Highway. As discussed previously, Gilmore Clarke designed each elevation on the highway with native stone and segmental arches that were intended to harmonize with their surroundings, not dominate them (NPS GWMP, no date). The National Park Service proposes to restore the stone face close to its original appearance consistent with the parkway's original design philosophy. The National Park Service would remove the original stone facing of the bridge and reset the stones in a similar manner to the original construction. Matching stonework would be installed as necessary on new construction when refacing the bridge abutment wingwalls. Other architectural features would be replaced in kind or would be in character with the parkway's cultural landscape. Overall, the rehabilitation would have a minor, long-term, beneficial impact on historic structures because it would help restore the bridge's stone facing and the replacement of the bridge decking would extend the useful life of the bridge and retard future deterioration of the historic structure.

The bridge railings and guardrails would not be replaced in kind because of the safety requirements. The railings do not meet current crash test standards; thus, it is necessary to replace the railings. The railings would be replaced using an aluminum railing with reinforced concrete core wall with stone masonry facing and coping, which is similar to the existing railing that separates the trail from the access ramp under the bridge. The new railings would be consistent with the parkway's design standards. Secondly, the guardrails need to be replaced because they are well below the recommended height for traffic barriers and several rail posts are severely spalled; therefore, the failing concrete post-mounted wood guardrail would be removed and replaced with a steel-backed timber guardrail. The changes are necessary to meet AASHTO standards. Both improvements would slightly change the appearance of the bridge but would not diminish its historic integrity. Therefore, the changes to the railings and guardrails would have a negligible, long-term, adverse impact on the historic integrity of the bridge.

Cumulative Effects. The preferred alternative identified in the Environmental Assessment for the Humpback Bridge replacement would have an adverse effect on historic resources because of the physical destruction of the Humpback Bridge, which is one of the original eight bridges on the Mount Vernon Memorial Highway (FHWA, 2002). In addition, past capital improvements at the airport have also impacted the historic resources on the parkway. The bridge rehabilitation project under Alternative B would be expected to contribute a very small increment to the adverse impact and, collectively, the cumulative effect would be minor, long-term, and adverse.

Conclusion. The rehabilitation would be expected to have a minor, long-term, beneficial impact because the National Park Service would restore the character-defining feature of the historic bridge on the parkway. In addition, the replacement of the bridge decking would extend the useful life of the bridge and retard future deterioration of the structure. The changes to the railings and guardrails would have a negligible, long-term, adverse impact, but they are necessary for safety reasons. A minor, long-term, adverse cumulative effect would occur.

Because there would be no major adverse impact to resources or values whose conservation are: (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation

of the George Washington Memorial Parkway; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the park's general management plan or other relevant National Park Service planning document, there would be no impairment of the park's resources or values.

Section 106 Summary. After applying the Advisory Council on Historic Preservation's Criteria of adverse effect (36 CFR 800.5), the National Park Service proposes that implementing Alternative B would have no adverse effect on a property that may meet National Register Criteria. The effect would not alter the bridge structure and its defining features to a point that it would diminish the bridge's eligibility on the National Register of Historic Places. The National Park Service prepared an Assessment of Effect when alternative designs were formulated and solicited comments and concurrence from the Virginia Department of Historic Resources. In this case, a "no adverse determination" finding was submitted for review. The National Park Service did not receive a response from the Virginia Department of Historic Resources within the 30-day specified review time. Therefore, according to 36CFR800(c)(1), "Failure of the State Historic Preservation Office/Tribal Historic Preservation Office to Respond within 30 days of receipt of findings shall be considered agreement of the State Historic Preservation Office/Tribal Historic Preservation Office with the finding."

ALTERNATIVE C - BRIDGE REHABILITATION WITH NEW TRAIL BRIDGE

Under Alternative C, the National Park Service would rehabilitate the historic bridge. The major project components include the replacement of the bridge decking, repair of guardrails and railings, and construction of a new trail bridge parallel to (but separated from) the existing roadway bridge. The replacement of the bridge decking and minor repairs to the stone facing would have beneficial impacts similar to those described in Alternative B. However, the construction of the new trail bridge parallel to the historic roadway bridge would have a moderate, long-term, adverse impact because the trail bridge would diminish the historic character of the roadway bridge. The construction of the new trail bridge would not be consistent with the *Secretary of the Interior's Standards for the Treatment of Historic Properties* because the construction of a new trail bridge would not retain and preserve the historic integrity of the roadway bridge. The trail bridge would not be visually compatible because it would essentially shield views of the original bridge's stone facing. The stone facing is a character-defining feature that exemplifies the craftsmanship of the original eight bridges constructed as part of the Mount Vernon Memorial Highway. The new trail bridge would not be the gentlest means possible to fulfill the purpose of the project while minimizing impacts to the historic property; therefore, a moderate, long-term, adverse impact would occur.

The bridge railings and guardrails would not be replaced in kind because of the safety concerns. Both improvements would slightly change the appearance of the bridge, but would not diminish the historic quality of the bridge. Therefore, the changes to the railings and guardrails would have a negligible, long-term, adverse impact.

Cumulative Effects. The preferred alternative identified in the Environmental Assessment for the Humpback Bridge replacement would have an adverse effect on historic resources because it calls for the physical destruction of the Humpback Bridge, which is one of the original eight bridges on the Mount Vernon Memorial Highway (FHWA, 2002). In addition, past capital in-

provements at the airport have also impacted the historic resources on the parkway. The bridge rehabilitation project under Alternative C would contribute a very small increment to the adverse impact and collectively, the cumulative effect to the parkway's historic resources would be moderate, long-term, and adverse.

Conclusion. Alternative C would have a moderate, long-term, adverse impact because the construction of the new trail bridge would diminish the historic integrity of the original bridge by shielding views of the stone faced bridge abutment wingwalls. The replacement of the bridge decking would extend the useful life of the bridge and retard future deterioration of the structure; and these improvements would have a minor, long-term, beneficial impact. The changes to the railings and guardrails would have a negligible, long-term, adverse impact, but are necessary for safety reasons. The bridge rehabilitation project under Alternative C would contribute a very small increment to the adverse impact and collectively, the cumulative effect to the parkway's historic resources would be moderate, long-term, and adverse.

Because there would be no major adverse impact to resources or values whose conservation are: (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the George Washington Memorial Parkway; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the park's general management plan or other relevant National Park Service planning document, there would be no impairment of the park's resources or values.

Section 106 Summary. After applying the Advisory Council on Historic Preservation's Criteria of adverse effect (36 CFR 800.5), the National Park Service proposes that implementing Alternative C would have an effect on a property that may meet National Register Criteria; however, this effect would be adverse. Alternative C does not represent the gentlest means possible to avoid impacts to the historic structure. Alternative C would have visual impacts to the extent that the bridge's character-defining feature would be diminished; however, the overall Parkway's National Register eligibility would not be jeopardized.

IMPACTS TO CULTURAL LANDSCAPES

DEFINITION OF INTENSITY LEVELS

In order for a cultural landscape to be listed in the National Register, it must meet one or more of the following criteria of significance: associated with events that have made a significant contribution to the broad patterns of our history; associated with the lives of persons significant in our past; embody the distinctive characteristics of a type, period, or method of construction, or represent the work of a master, or possess high artistic value, or represent a significant and distinguishable entity whose components may lack individual distinction; or have yielded, or may be likely to yield, information important in prehistory or history (*National Register Bulletin, How to Apply the National Register Criteria for Evaluation*). The landscape must also have integrity of those patterns and features - spatial organization and land forms; topography; vegetation; circulation networks; water features; and structures/buildings, site furnishings, or objects necessary to convey its significance (*Secretary of the Interior's Standards for the Treatment of Historic Properties With Guidelines for the Treatment of Cultural Landscapes*). For purposes of analyzing po-

tential impacts to cultural landscapes, the thresholds of change for the intensity of an impact are defined as follows:

- *negligible*: Impact(s) is at the lowest levels of detection - barely perceptible and not measurable. For purposes of Section 106, the determination of effect would be *no adverse effect*.
- *minor*: Adverse impact - impact(s) would alter a pattern(s) or feature(s) of the cultural landscape but would not diminish the overall integrity of the landscape. For purposes of Section 106, the determination of effect would be *no adverse effect*. Beneficial impact - preservation of landscape patterns and features in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes*. For purposes of Section 106, the determination of effect would be *no adverse effect*.
- *moderate*: Adverse impact - impact(s) would alter a pattern(s) or feature(s) of the cultural landscape, diminishing the overall integrity of the landscape. For purposes of Section 106, the determination of effect would be *adverse effect*. A Memorandum of Agreement is executed among the National Park Service and applicable state or tribal historic preservation officer and, if necessary, the Advisory Council on Historic Preservation in accordance with 36 CFR 800.6(b). The mitigation measures identified in the Memorandum of Agreement reduce the intensity of impact from major to moderate. Beneficial impact - rehabilitation of a landscape or its patterns and features in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes*. For purposes of Section 106, the determination of effect would be *no adverse effect*.
- *major*: Adverse impact - impact(s) would alter a pattern(s) or feature(s) of the cultural landscape, diminishing the overall integrity of the resource. For purposes of Section 106, the determination of effect would be *adverse effect*. The National Park Service and applicable state or tribal historic preservation officer are unable to negotiate and execute a Memorandum of Agreement in accordance with 36 CFR 800.6(b). Beneficial impact - restoration of a landscape or its patterns and features in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes*. For purposes of Section 106, the determination of effect would be *no adverse effect*.

Duration: Short-term – Effects lasting for the duration of the construction activities (less than 1 year); Long-term – Effects lasting longer than the duration of the construction (longer than 1 year).

ALTERNATIVE A - NO-ACTION ALTERNATIVE

Under the No-Action Alternative, the National Park Service would continue management actions that would include minimum rehabilitation of the bridge to maintain the existing integrity and character of the historic structure. Implementation of the No-Action Alternative would have no impact on the cultural landscape of the George Washington Memorial Parkway/Mount Vernon Memorial Highway because the National Park Service, through minimum rehabilitation and maintenance efforts, would maintain the bridge near its existing state and no new nonconforming elements to the cultural landscape would be added. Eventually, the bridge deck would require replacement or the structure would have to be closed because the structure cannot be maintained indefinitely with minor bridge repairs.

Cumulative Effects. No cumulative effects would occur because implementation of the No-Action Alternative would have no impact on the cultural landscape.

Conclusion. Under the No-Action Alternative, no impacts on the cultural landscape would occur because the National Park Service would maintain the bridge near its existing state. Because there would be no major adverse impact to resources or values whose conservation are: (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the George Washington Memorial Parkway; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the park's general management plan or other relevant National Park Service planning document, there would be no impairment of the park's resources or values.

ALTERNATIVE B - BRIDGE REHABILITATION WITH EXTENSION FOR TRAIL REALIGNMENT (PREFERRED ALTERNATIVE)

Under Alternative B, the National Park Service would rehabilitate the historic bridge. The major project components include the replacement of the bridge decking, repair of guardrails and railings, and construction of a shoulder extension (effectively widening the bridge by 15 feet) to realign the Mount Vernon Trail. In addition, the National Park Service would paint the bridge beams; seal cracks and fix spalls on bridge abutment walls; reset capstones on the guardwall underneath the bridge; and replace and/or reset facestones on the bridge abutment wingwalls. All rehabilitation work would be consistent with the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes*. The undertaking would be completed in a manner as to maintain the character of the cultural landscape of George Washington Memorial Parkway and Mount Vernon Memorial Highway.

The historic bridge over the north entrance to the airport lies within the parkway segment from Gravelly Point to south of the airport. The cultural landscape report identifies this stretch of roadway to be the least historic, sylvan, or riparian in character mostly because of the airport expansion resulting in the roadway relocation and because of Crystal City's dense urban skyline paralleling the highway from Roaches Run to just north of Four Mile Run (NPS GWMP, no date). As a result, the minor repairs and bridge rehabilitation would have negligible adverse impacts to the cultural landscape. The bridge footprint would be widened by approximately 15 feet to the north. The change to the bridge appearance would be barely noticeable to visitors and the appearance would be in character with the original bridges. The change to the bridge's configuration would have a minor, long-term, adverse impact on the cultural landscape because it would not be within the representative context and setting of the original bridge.

The stone facing is a key element defining the character of the original historic bridges along the Mount Vernon Memorial Highway; therefore, the National Park Service proposes to restore the stone face close to its original appearance. The National Park Service would remove the original stone facing on the wingwalls and reset the stones in a similar manner to the original construction. Matching stonework would be installed on the new bridge extension. Other architectural features would be replaced in kind or would be in character with the parkway's design and cultural landscape. Overall, the rehabilitation would be expected to have a minor, long-term, beneficial impact because of the restoration of the stone face that contributes to the cultural landscape.

The bridge railings and guardrails would not be replaced in kind because of the safety concerns. These improvements would slightly change the appearance of the bridge but would not diminish the cultural landscape. Therefore, the changes to the railings and guardrails would have a negligible, long-term, adverse impact. The vegetation to be removed as part of this project has no association with the original plantings of the Mount Vernon Memorial Parkway because the highway alignment was relocated for the airport expansion.

Cumulative Effects. The impacts associated with Alternative B, when added to the past, present, and reasonably foreseeable future projects, would have no beneficial cumulative effects because no projects were identified for this study that would have an overall beneficial impact on the cultural landscape. The adverse cumulative impacts would be the same as described for historic structures/sites. The bridge rehabilitation project under Alternative B would be expected to contribute a very small increment to the adverse impact and, collectively, the cumulative effect would be minor, long-term, and adverse.

Conclusion. Alternative B would have negligible, long-term, adverse impacts on the cultural landscape from minor repairs and changes in the bridge footprint not representative of the context and setting of the original bridge. The changes would be slight and rehabilitation would be in character with the parkway's design so that the impacts would be negligible. The bridge rehabilitation project under Alternative B would be expected to contribute a very small increment to the adverse impact and, collectively, the cumulative effect would be minor, long-term, and adverse.

Because there would be no major adverse impact to resources or values whose conservation are: (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the George Washington Memorial Parkway; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the park's general management plan or other relevant National Park Service planning document, there would be no impairment of the park's resources or values.

Section 106 Summary. After applying the Advisory Council on Historic Preservation's Criteria of adverse effect (36 CFR 800.5), the National Park Service proposes that implementing Alternative B would have no adverse effect on a property that may meet National Register Criteria. The National Park Service prepared an Assessment of Effect when alternative designs were formulated and solicited comments and concurrence from the Virginia Department of Historic Resources. In this case, a "no adverse determination" finding was submitted for review. The National Park Service did not receive a response from the Virginia Department of Historic Resources within the 30-day specified review time. Therefore, according to 36CFR800(c)(1), "Failure of the State Historic Preservation Office/Tribal Historic Preservation Office to respond within 30 days of receipt of findings shall be considered agreement of the State Historic Preservation Office/Tribal Historic Preservation Office with the finding."

ALTERNATIVE C - BRIDGE REHABILITATION WITH NEW TRAIL BRIDGE

Under Alternative C, the National Park Service would rehabilitate the historic bridge. The project components include the replacement of the bridge decking, repair of guardrails and railings, and construction of a new trail bridge parallel to (but separated from) the existing road bridge.

As described in the historic structures/sites impact analysis, the construction of the new trail bridge parallel to the historic roadway bridge would have a visual impact that would diminish the historic character of the bridge. The new trail bridge would not be visually compatible because it would essentially shield views of the character-defining stone face facade. Also, the new trail bridge would be a non-conforming element to the landscape. As a result of these visual impacts, there would be long-term, adverse impacts on the cultural landscape. The impact would be minor because the bridge represents such a small portion of the landscape with a very small viewshed because of existing vegetation, topography, and the airport. In addition, the new trail bridge would be constructed in an urbanized area of the cultural landscape that has already been greatly influenced by the airport and Crystal City skyline.

The bridge railings and guardrails would not be replaced in kind because of the safety concerns. Both improvements would slightly change the appearance of the bridge but would not diminish the cultural landscape. Therefore, the changes to the railings and guardrails would have a negligible, long-term, adverse impact. The vegetation to be removed as part of this project has no association with the original plantings of the Mount Vernon Memorial Parkway because the alignment was relocated for the airport expansion.

Cumulative Effects. The preferred alternative identified in the Environmental Assessment from the Humpback Bridge replacement would have an adverse effect on the cultural landscape because it calls for physical destruction of the Humpback Bridge, which is part of the original Mount Vernon Memorial Highway construction (FHWA, 2002). In addition, past capital improvements at the airport have also impacted the cultural landscape of the parkway. The bridge rehabilitation project under Alternative C would contribute a small increment to the adverse impact on the cultural landscape and, collectively, the cumulative effect would be minor, long-term, and adverse.

Conclusion. Under Alternative C, the construction of a new trail bridge would have minor, long-term, adverse impacts on the cultural landscape because it adds a non-conforming element to the cultural landscape. The repair of existing bridge such as the replacement of guardrails and railings would have a long-term, adverse impact on the cultural landscape. The changes to the existing bridge would be in character with the parkway's design so that the impacts would be negligible. A minor, long-term, adverse cumulative impact would occur.

Because there would be no major adverse impact to resources or values whose conservation are: (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the George Washington Memorial Parkway; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the park's general management plan or other relevant National Park Service planning document, there would be no impairment of the park's resources or values.

Section 106 Summary. After applying the Advisory Council on Historic Preservation's Criteria of adverse effect (36 CFR 800.5), the National Park Service proposes that implementing Alternative C would have an adverse effect on a property that may meet National Register Criteria. A Memorandum of Agreement with measures to minimize or mitigate the adverse impact would be written and executed by the National Park Service, the Virginia Department of Historic Resources and possibly the Advisory Council on Historic Preservation.

IMPACTS ON AESTHETICS AND VISUAL RESOURCES

DEFINITION OF INTENSITY LEVELS

Analyses of the potential intensity of impacts on aesthetic and visual resources were derived from the available information on the George Washington Memorial Parkway, and the professional judgment of the park staff. The thresholds of change for the intensity of impacts on aesthetic and visual resources are defined as follows:

- *negligible*: Effects to the visual quality of the landscape would be at or below the level of detection; changes would also be so slight that they would not be of any measurable or perceptible consequence to the visitor experience.
- *minor*: Effects to the visual quality of the landscape would be detectable, localized, and would be small and of little consequence to the visitor experience. Mitigation measures, if needed to offset adverse effects, would be simple and successful.
- *moderate*: Effects to the visual quality of the landscape would be readily detectable and localized, with consequences at the regional level. The action would not completely alter the viewshed, but would be a visual addition to the existing condition. Mitigation measures, if needed, would be extensive and likely successful.
- *major*: Effects to the visual quality of the landscape would be obvious, with substantial consequences to the visitor experience. Extensive mitigation would be needed to offset any adverse effects and their success would not be guaranteed.

Duration: Short-term – Effects lasting for the duration of the construction activities (less than 1 year); Long-term – Effects lasting longer than the duration of the construction (longer than 1 year).

ALTERNATIVE A - NO-ACTION ALTERNATIVE

Under the No-Action Alternative, the National Park Service would continue management actions that would include minimum rehabilitation of the bridge to maintain the existing integrity and character of the historic structure. A more inclusive rehabilitation effort to improve and restore the bridge's exterior appearance (e.g., recapping facestones and painting the bridge steel beams) would not occur. The existing rust on the exterior of the bridge steel superstructure would continue to have a minor, long-term, adverse impact on aesthetics and visual resources. Currently, the bridge appearance is not consistent with the well-maintained landscape of the parkway. The impact is minor because the majority of the rust and deterioration is on the northeast side, mostly shielded by vegetation, and not within any important viewshed of the Mount Vernon Trail, parkway, or monuments. The impact on the visual quality is noticeable to visitors; however, the bridge appearance has little to no effect on the overall aesthetic quality of the parkway and the visitor experience.

Cumulative Effects. Future projects such as the Humpback Bridge replacement and new entrance to Columbia Island Marina have the potential to impact aesthetics and visual resources because

of the addition of new elements to the viewshed. In the past, projects such as the new trail bridges and sound barriers/walls at Ronald Reagan Washington National Airport have affected vistas to and from the parkway. Implementation of the No-Action Alternative, when added to these past, present, and reasonably foreseeable future actions, would have a cumulative effect on aesthetics and visual resources because the existing rust on the exterior of the bridge face would continue to impact the aesthetics of the parkway. The incremental impact to the visual resources would be small, long-term, adverse, and localized, and, collectively, the cumulative effect is anticipated to be minor and long-term.

Conclusion. Under the No-Action Alternative, impacts to aesthetics and visual resources would be minor, long-term, and adverse. An adverse cumulative effect would occur; however, the incremental impact would be negligible, and, collectively, the cumulative effect is anticipated to be minor.

Because there would be no major, adverse impacts to resources or values whose conservation are: (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the George Washington Memorial Parkway; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the park's general management plan or other relevant National Park Service planning document, there would be no impairment of the park's resources or values.

ALTERNATIVE B - BRIDGE REHABILITATION WITH EXTENSION FOR TRAIL REALIGNMENT (PREFERRED ALTERNATIVE)

Under Alternative B, the National Park Service would rehabilitate the historic bridge. The major project components include the replacement of the bridge decking, repair of guardrails and railings, and construction of a shoulder extension (effectively widening the bridge by 15 feet) to realign the Mount Vernon Trail. In addition, the National Park Service would paint the bridge beams; seal cracks and fix spalls on bridge abutment walls; reset capstones on the guardwall underneath the bridge; and replace and/or recap facestones on the bridge facade. These actions would improve the appearance of the bridge; therefore, a minor, long-term, beneficial impact would occur from the rehabilitation efforts. The rehabilitation would be consistent with the existing character of the parkway. As a result, the bridge extension portion of the project is anticipated to have a negligible adverse impact on the aesthetics and visual resources of the parkway. Likewise, the replacement of the decking and replacement of guardrails and railings would have a negligible adverse impacts on aesthetics and visual resources.

Cumulative Effects. Future capital improvement projects on the parkway such as the Humpback Bridge replacement and new entrance to Columbia Island Marina have the potential to have beneficial impacts on aesthetics and visual resources. Implementation of Alternative B, when added to these reasonably foreseeable future actions, would contribute a negligible and localized incremental impact because the rehabilitation efforts such as painting and facestone replacement would keep the bridge in character with the existing parkway design. Collectively, the beneficial cumulative effect is anticipated to be minor and long-term.

Conclusion. Under Alternative B, a minor, long-term, beneficial impact would occur from the rehabilitation efforts because of the physical improvements to the bridge exterior features and its appearance. A minor, long-term, beneficial, cumulative effect would occur.

Because there would be no major adverse impact to resources or values whose conservation are: (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the George Washington Memorial Parkway; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the park's general management plan or other relevant National Park Service planning document, there would be no impairment of the park's resources or values.

ALTERNATIVE C - BRIDGE REHABILITATION WITH NEW TRAIL BRIDGE

Under Alternative C, the National Park Service would rehabilitate the historic bridge. The major project components include the replacement of the bridge decking, repair of guardrails and railings, and construction of a new trail bridge parallel to (but separated from) the existing road bridge. In addition, the National Park Service would paint the bridge beams; seal cracks and fix spalls on bridge abutment walls; reset capstones on the guardwall underneath the bridge; and replace and/or recap facestones on the bridge facade. These actions would improve the appearance of the bridge; however, the new trail bridge would be constructed directly in front of the east side of the historic bridge and would affect the viewshed of the bridge. Views of the architectural stonework on the bridge face would be diminished by the position of the new trail bridge and different architectural elements not consistent with the bridge's original character. As a result, a minor, long-term, adverse impact would occur from the construction of the new trail bridge because it would obstruct the views of the historic bridge.

The repair of existing bridge such as the replacement of guardrails and railings and painting of the steel infrastructure would have a long-term, beneficial impact on the aesthetics. These improvements would improve the bridge appearance although the beneficial impact would be minor, because the views to the historic bridge would still be obstructed.

Cumulative Effects. Future projects such as the Humpback Bridge replacement and new entrance to Columbia Island Marina have the potential to impact aesthetics and visual resources. In the past, projects such as the new trail bridges and sound barriers/walls at Ronald Reagan Washington National Airport have affected vistas to and from the parkway. Implementation of Alternative C, when added to these past, present, and reasonably foreseeable future actions, would contribute to adverse cumulative effects on aesthetics and visual resources because the new bridge would shield views to the historic bridge thus impacting the aesthetics of the parkway; however, the incremental impact to the resource would be minor and localized. Collectively, the cumulative effect is anticipated to be minor.

Conclusion. Overall, a minor, long-term, adverse impact would occur from the construction of the new trail bridge. The repair of existing bridge such as the replacement of guardrails and railings and painting of the steel infrastructure would have a long-term, beneficial impact on the aesthetics. An adverse cumulative effect would occur; however, the incremental impact would be minor and, collectively, the cumulative effect is anticipated to be minor.

Because there would be no major adverse impact to resources or values whose conservation are: (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the George Washington Memorial Parkway; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the park's general management plan or other relevant National Park Service planning document, there would be no impairment of the park's resources or values.

IMPACTS ON HEALTH AND SAFETY

DEFINITION OF INTENSITY LEVELS

Analyses of the potential intensity of impacts on health and safety were derived from the available information on the parkway, and the professional judgment of the park staff. The thresholds of change for the intensity of impacts on health and safety are defined as follows:

- *negligible*: Health and safety would not be affected, or the effects would be at low levels of detection and would not have an appreciable effect on health or safety.
- *minor*: The effect would be detectable, but would not have an appreciable effect on health and safety. If mitigation was needed, it would be relatively simple and would likely be successful.
- *moderate*: The effects would be readily apparent and would result in substantial, noticeable effects to health and safety on a local scale. Mitigation measures would probably be necessary and would likely be successful.
- *major*: The effects would be readily apparent and would result in substantial, noticeable effects to health and safety on a regional scale. Extensive mitigation measures would be needed and their success would not be guaranteed.

Duration: Short-term – Effects lasting for the duration of the construction activities (less than 1 year); Long-term – Effects lasting longer than the duration of the construction (longer than 1 year).

ALTERNATIVE A - NO-ACTION ALTERNATIVE

Under the No-Action Alternative, the National Park Service would continue management actions that would include minimum spot repairs to maintain the bridge and trail. The Mount Vernon Trail would remain very close to the vehicular traffic on the northbound side of the parkway. Safety improvements such as the realignment of the trail to the bridge extension or new trail bridge with the construction of a protective parapet barrier would not be implemented. Motorists and trail users would continue to be at risk because of the close alignment of the trail on the shoulder of the existing bridge to the traffic on the northbound lanes of the parkway. In addition, the bridge decking would continue to deteriorate, causing a potential hazard for motorists on the parkway. If the National Park Service were not to replace the decking or railings and guardrails, the National Park Service would be open to additional liability in the event of an accident be-

cause of known and documented deficiencies that exist. The combination of trail location and deck deterioration would have a moderate, long-term, adverse impact on health and safety.

Cumulative Effects. The impacts associated with No-Action Alternative, when added to the past, present, and reasonably foreseeable projects, would have no cumulative effects because no projects were identified for this study that would have long-term, adverse impacts on health and safety.

Conclusion. Under the No-Action Alternative, impacts would be moderate, long-term, and adverse because the trail would remain close to the roadway without any protective barrier and the deteriorating deck conditions would eventually cause road hazards to motorists. No adverse cumulative effect would occur.

Because there would be no major adverse impact to resources or values whose conservation are: (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the George Washington Memorial Parkway; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the park's general management plan or other relevant National Park Service planning document, there would be no impairment of the park's resources or values.

ALTERNATIVE B - BRIDGE REHABILITATION WITH EXTENSION FOR TRAIL REALIGNMENT (PREFERRED ALTERNATIVE)

Under Alternative B, the major project components include the replacement of the bridge decking, repair of guardrails and railings, and construction of a shoulder extension (effectively widening the bridge by 15 feet) to realign the Mount Vernon Trail. The shoulder extension and trail realignment would allow the National Park Service to spatially and physically separate trail users from northbound traffic on the George Washington Memorial Parkway. A stone-faced parapet barrier wall would be constructed between the trail and the highway. The separation of the trail from the road and installation of the barrier wall would have a moderate, long-term, beneficial impact on safety by reducing the risk of accidents between trail users and motorists.

The National Park Service proposes to upgrade and replace the guardrails to meet AASHTO standards. Currently, the existing guardrails are too short and do not meet recommended AASHTO design standards. The existing stone guardrails present a snagging hazard for vehicles and the existing concrete posts used for the wood guardrails are a roadside hazard. Therefore, the guardrails would be replaced. Also, the existing bridge railing between the stone parapets along the parkway does not comply with AASHTO crash test standards. This railing would be replaced with a continuous parapet with railings that would match the railings on the new trail bridges in front of the airport. This railing closely resembles the existing railing. Lastly, the replacing of the lighting under the bridge, restriping the roadways, and installing a photo radar box for traffic detection would contribute to the health and safety benefits of the project. These improvements to the bridge and trail would have a moderate, long-term, beneficial impact on health and safety.

During construction, the Mount Vernon Trail would remain open. Mitigation measures such as drop nets for bridgework, trail detours with barrier protection, restriction on road closures during

peak periods, and vehicular traffic controls would be implemented to minimize the risk to motorists and trail users during construction. With this mitigation, the potential risk of safety related incidents would be low. As a result, the proposed alternative with mitigation would have a minor, short-term, adverse impact on health and safety during construction.

Cumulative Effects. Future projects such as the Humpback Bridge replacement and new entrance to Columbia Island Marina have the potential to have beneficial impacts on health and safety. In the past, projects such as the new trail bridges and road/parking enhancements have improved conditions to minimize/eliminate risks for motorists and trail user conflicts. Implementation of Alternative B, when added to these past, present, and reasonably foreseeable future actions, would contribute beneficially to the cumulative effects on health and safety because the actions would move the trail away from the roadway and provide for a protective barrier, making the trail use safer. The incremental impact to the resource would be moderate and localized. Collectively, the beneficial cumulative effect on safety for using the Mount Vernon Trail is anticipated to be moderate and long-term.

Conclusion. Implementation of Alternative B would have moderate, long-term, beneficial impacts on health and safety because of the numerous components designed to improve the safety of the bridge. Minor, short-term, impacts could result during construction from temporary trail detours, rerouting of vehicular traffic, and nearby construction activities. Mitigation measures would minimize short-term impacts. A moderate, beneficial, long-term, cumulative impact would occur.

Because there would be no major adverse impact to resources or values whose conservation are: (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the George Washington Memorial Parkway; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the park's general management plan or other relevant National Park Service planning document, there would be no impairment of the park's resources or values.

ALTERNATIVE C - BRIDGE REHABILITATION WITH NEW TRAIL BRIDGE

Under Alternative C, the major project components include the replacement of the bridge decking, repair of guardrails and railings, and construction of a new trail bridge. The new trail bridge and trail realignment would allow the National Park Service to spatially and physically separate trail users from northbound traffic on the George Washington Memorial Parkway. The separation of the trail from the road would have a moderate, long-term, beneficial impact on safety by reducing the risk to motorists and trail users.

The National Park Service proposes to upgrade and replace the guardrails to meet AASHTO standards. The existing guardrails are too short and do not meet recommended AASHTO design standards for crash testing. The stone guardrails present a snagging hazard for vehicles and the existing concrete posts used for the wood guardrails are a roadside hazard. Therefore, the guardrails would be replaced. This existing railing would be replaced with a continuous parapet with railing that would match the railing on the new trail bridges in front of the airport. This railing closely resembles the existing railing. Lastly, the replacing of the lighting under the bridge, restriping the roadways, and installing a photo radar box for traffic detection would contribute to

the health and safety benefits of the project. These improvements to the bridge and trail would have a moderate, long-term, beneficial impact on health and safety.

During construction, the Mount Vernon Trail would remain open. Mitigation measures such as drop nets for bridgework, trail detours with barrier protection, restriction on road closures during peak periods, and vehicular traffic control measures would be implemented to minimize the risk to motorists and trail users during construction. With this mitigation, the potential risk of safety related incidents would be low. As a result, the proposed action with mitigation would have a minor, short-term, adverse impact on health and safety during construction.

Cumulative Effects. Future projects such as the Humpback Bridge replacement and new entrance to Columbia Island Marina have the potential to have beneficial impacts on health and safety. In the past, projects such as the new trail bridges and road/parking enhancements have improved conditions to minimize/eliminate risks for motorists and trail user conflicts. Implementation of Alternative C, when added to these past, present, and reasonably foreseeable future actions, would contribute beneficially to the cumulative effects on health and safety because the actions would move the trail away from the roadway and provide for a protective barrier, making the trail use safer. The incremental impact to the resource would be moderate and localized. Collectively, the beneficial cumulative effect on safety for using the Mount Vernon Trail is anticipated to be moderate and long-term.

Conclusion. Implementation of Alternative C would have a moderate, long-term, beneficial impacts on health and safety because of the numerous components designed to improve the safety of the bridge. Minor, short-term, impacts could result during construction from temporary trail detours, rerouting of vehicular traffic, and nearby construction activities. Mitigation measures would minimize short-term impacts. A moderate, beneficial, long-term, cumulative impact would occur.

Because there would be no major adverse impact to resources or values whose conservation are: (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the George Washington Memorial Parkway; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the park's general management plan or other relevant National Park Service planning document, there would be no impairment of the park's resources or values.

IMPACTS ON VEGETATION

DEFINITION OF INTENSITY LEVELS

Available information on vegetation and vegetative communities potentially impacted by the proposed alternatives was compiled. To the extent possible, location of sensitive vegetation species, populations, and communities were identified and avoided. Predictions about short-term and long-term impacts to vegetation were based on previous experience of projects of similar scope and vegetative characteristics. Analyses of the potential intensity of impacts on vegetation were derived from the available information on the parkway and the professional judgment of the park staff. The thresholds of change for the intensity of impacts on vegetation are defined as follows:

- *negligible*: Native vegetation would not be affected, or some individual native plants would be affected as a result of the alternative, but there would be no effect on native species populations. The effects would be on a small scale and no species of special concern would be affected.
- *minor*: The alternative would affect some individual native plants and would also affect a relatively small portion of that species population. Mitigation to offset adverse effects, including special measures to avoid affecting species of concern, would be required and would be effective.
- *moderate*: The alternative would affect some individual native plants and would also affect a sizeable segment of the species population and over a relatively large area. Mitigation to offset the adverse effects could be extensive, but would likely be successful. Some species of special concern could be affected.
- *major*: The alternative would have a considerable effect on native plant populations, including species of special concerns, and could affect a relatively large area in and outside of the park. Mitigation measures to offset the adverse effects would be required, extensive, and success of the mitigation measures would not be guaranteed.

Duration: Short-term – Effects lasting less than 3 years; Long-term – Effects lasting longer than 3 years.

ALTERNATIVE A - NO-ACTION ALTERNATIVE

Under the No-Action Alternative, the National Park Service would continue management actions that would include minimum spot repairs to maintain the bridge and trail. The Mount Vernon Trail would remain very close to the vehicular traffic on the northbound side of the parkway. Routine landscape maintenance (e.g., mowing, pruning for safety purposes, etc.) would be performed; however, no trees or shrubs would be removed. The No-Action Alternative would have no impact on vegetation.

Cumulative Effects. There would be no cumulative effect because there would be no impact on vegetation under the No-Action Alternative.

Conclusion. Under the No-Action Alternative, there would be no impacts to vegetation because vegetation would not be removed or adversely affected. Because there would be no major adverse impact to resources or values whose conservation are: (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the George Washington Memorial Parkway; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the park's general management plan or other relevant National Park Service planning document, there would be no impairment of the park's resources or values.

ALTERNATIVE B - BRIDGE REHABILITATION WITH EXTENSION FOR TRAIL REALIGNMENT (PREFERRED ALTERNATIVE)

Under Alternative B, the major project components include the replacement of the bridge decking, repair of guardrails and railings, and construction of a shoulder extension (effectively widen-

ing the bridge by 15 feet) to realign the Mount Vernon Trail. The shoulder extension and trail realignment would allow the National Park Service to spatially and physically separate trail users from northbound traffic on the George Washington Memorial Parkway. The widening of the bridge and realignment of the trail would require the removal of trees and shrubs on the north side of the parkway. The native tree species affected would be eastern white pine (*Pinus strobus*), black locust (*Robinia pseudoaccacia*), elm (*Ulmus* sp.), and eastern red cedar (*Juniperus virginiana*). The non-native species, such as tree-of-heaven and Japanese honeysuckle, would also be removed.

Any native trees removed during the project would be replaced in kind. For instance, the white pines would be removed to construct the bridge extension and realign the trail. Non-native trees and shrubs may be replaced by plantings of native species. The replacement planting would be placed close to the original location but an appropriate distance from the trail for safety purposes. A minor, short-term, adverse impact on vegetation would occur because of the temporary loss of vegetation during construction and because the new plantings would require time to mature to a comparable size to the existing trees. Long-term, the vegetation would be replaced and grow to provide similar habitat and aesthetic value; therefore, there would be no long-term impacts.

Cumulative Effects. Future projects such as the Humpback Bridge replacement and new entrance to Columbia Island Marina have the potential to have minor, short-term, adverse impacts on vegetation. The proposed transportation improvement would likely require the removal and replacement of existing vegetation near the bridge and marina. Implementation of Alternative B, when added to these past, present, and reasonably foreseeable future actions, would contribute negligibly to the cumulative effect on vegetation. The incremental impact to the resource would be minor and localized. Collectively, the short-term cumulative effect on vegetation is anticipated to be minor.

Conclusion. Implementation of Alternative B would have minor, short-term, adverse impacts on vegetation because the widening of the bridge and roadway would require the removal of native vegetation. The National Park Service would replace the native vegetation in-kind to offset any potential long-term impacts. A minor, short-term, adverse, cumulative impact would occur.

Because there would be no major adverse impact to resources or values whose conservation are: (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the George Washington Memorial Parkway; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the park's general management plan or other relevant National Park Service planning document, there would be no impairment of the park's resources or values.

ALTERNATIVE C - BRIDGE REHABILITATION WITH NEW TRAIL BRIDGE

Under Alternative C, the major project components include the replacement of the bridge decking, repair of guardrails and railings, and construction of a new trail bridge. The new trail bridge and trail realignment would allow the National Park Service to spatially and physically separate trail users from northbound traffic on the George Washington Memorial Parkway. This new trail bridge would require the removal of some trees and shrubs on the north side of the parkway. The native tree species affected would be eastern white pine (*Pinus strobus*), black locust (*Robinia*

pseudoaccacia), elm (*Ulmus* sp.), and eastern red cedar (*Juniperus virginiana*). The non-native species, tree-of-heaven (*Ailanthus altissima*) and Japanese honeysuckle (*Lonicera japonica*), would also be removed.

Any native trees removed during the project would be replaced in kind. Non-native trees and shrubs may be replaced by plantings of native species. The replacement planting would be placed close to the original location but an appropriate distance from the trail for safety purposes. A minor, short-term, adverse impact on vegetation would occur because of the temporary loss of vegetation during construction and because the new plantings would require time to mature to a comparable size to the existing trees. Long-term, the vegetation would be replaced and grow to provide similar habitat and aesthetic value; therefore, there would be no long-term impacts.

Cumulative Effects. Future projects such as the Humpback Bridge replacement and new entrance to Columbia Island Marina have the potential to have minor adverse impacts on vegetation. The proposed transportation improvement would likely require the removal and replacement of existing vegetation near the bridge and marina. Implementation of Alternative B, when added to these past, present, and reasonably foreseeable future actions, would contribute negligibly to the cumulative effects on vegetation. The incremental impact to the resource would be minor and localized. Collectively, the short-term cumulative effect on vegetation is anticipated to be minor.

Conclusion. Implementation of Alternative C would have minor, short-term, adverse impacts on vegetation because some vegetation would be removed for new trail bridge and bridge improvements. The National Park Service would replace the vegetation to offset any potential long-term impacts. A minor, short-term, adverse, cumulative impact would occur.

Because there would be no major adverse impact to resources or values whose conservation are (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the George Washington Memorial Parkway; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the park's general management plan or other relevant National Park Service planning document, there would be no impairment of the park's resources or values.

IMPACTS ON TRANSPORTATION (TRAFFIC)

DEFINITION OF INTENSITY LEVELS

Analyses of the potential intensity of impacts on transportation were derived from the available information on the George Washington Memorial Parkway and the professional judgment of the park staff. The thresholds of change for the intensity of impacts on transportation are defined as follows:

- *negligible:* The impact would be a change that would not be perceptible or would be barely perceptible by most motorists.
- *minor:* The impact would have an adverse or beneficial change to levels of services or commute times. The effect would be noticeable, but would result in little inconvenience or benefit to commuters.

- *moderate*: The impact would affect the commute of a large number of motorists and would result in a noticeable change in commute time, convenience or benefit, and level of service.
- *major*: The impact has a substantial effect on the commute of a large number of motorists, and would be highly noticeable and have a considerable effect on commute times to the extent that the use of the parkway is undesirable to motorists.

Duration: Short-term – Effects lasting for the duration of the construction activities (less than 1 year); Long-term – Effects lasting longer than the duration of the construction (longer than 1 year).

ALTERNATIVE A - NO-ACTION ALTERNATIVE

Under the No-Action Alternative, the National Park Service would continue management actions that would include minor repairs to the bridge. Over time, the bridge decking would continue to deteriorate. This condition would eventually lead to the development of potholes on the bridge. The potholes would impair driving conditions on the bridge and would cause motorists to slow down when driving over the bridge and result in added delays on the parkway. The potholes would also require the National Park Service to conduct more road maintenance to fill the potholes. During pothole repairs, temporary lane closures would be necessary, resulting in traffic delays. It can be expected that the frequency of repairs would be increased under the No-Action Alternative. Eventually, the deck would have to be replaced and the bridge painted which would require the bridge access to be restricted or even closed. As a result, the No-Action Alternative would have a moderate, long-term, adverse impact on transportation from the added delays caused by potholes and their repair as well as the eventual corrective actions necessary to repair the bridge decking which could result in restricted use and lane closures.

Cumulative Effects. The impacts to traffic associated with the No-Action Alternative are long-term impacts. In the case of traffic, long-term is more than 5 years from now. No specific future projects were identified that would have future adverse impacts on traffic; therefore, there would be no cumulative impacts on traffic.

Conclusion. Under the No-Action Alternative, impacts would be moderate, long-term, and adverse because of the deterioration of the bridge decking, resulting in an increase in potholes, which in turn would impact traffic flows and require temporary lane closures for maintenance. No adverse, cumulative impacts on traffic were identified.

Because there would be no major adverse impact to resources or values whose conservation are: (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the George Washington Memorial Parkway; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the park's general management plan or other relevant National Park Service planning document, there would be no impairment of the park's resources or values.

ALTERNATIVE B (PREFERRED ALTERNATIVE) AND ALTERNATIVE C

The impacts associated with Alternatives B and C are virtually the same; therefore, their impact discussions have been combined together. Under Alternatives B and C, the National Park Service

and Federal Highway Administration would correct many of the deficiencies of the bridge to improve transportation. For instance, the decking would be replaced and would help prevent the formation of potholes on the bridge, thus, reducing the frequency of routine maintenance necessary to fill the potholes. The transportation safety features such as the guardrails and bridge railings would be replaced and upgraded to meet ASHTO standards. As a result, the rehabilitation of the bridge under Alternatives B and C would have a moderate, long-term, beneficial impact on transportation because the condition of the bridge would be improved and sustained for future use.

During construction, a traffic control plan would be implemented. This plan would include temporary closures of one lane to the airport entrance road and on two different occasions, both lanes on the north entrance ramp would be closed between 10:00 pm and 5:00 am.

In order to construct the abutment walls for the new span, the contractor would have to close one lane to excavate and construct the footers for the foundation. This construction is anticipated to take three months for each side and require one lane closure during this timeframe. When one lane is closed into the airport, the queue scenario would overflow onto the southbound lanes of the parkway mainline during rush hours causing motorists to experience added delays. However, this impact would be minimized because there is a south entrance to the airport on the southbound lanes of the parkway that has excess capacity to accommodate the volume of traffic entering the airport. According to airport representatives and on-site park staff, the use of vehicle message signs and traffic control measure were highly successful in minimizing delays and instructing airport patrons to the south airport entrance during recent paving projects on the parkway and north entrance ramp.

The north entrance ramp would need to be completely closed on two separate occasions to move the facial girder. The work would be restricted to occur between 10:00 pm and 5:30 am. During this period, the volume of vehicles accessing the airport is low. It is anticipated that the contractor will need approximately two hours to move the girder. The construction and ramp closure would occur during the late night/early morning hours when the airport is closed; thereby reducing the impact on traffic and airport operations.

Overall, the traffic delays during construction would be noticeable with a slight inconvenience to motorists using the parkway or accessing the airport during the one-lane closures. Before and during construction, the National Park Service, in cooperation with the Metropolitan Washington Airports Authority, would notify users of changes to traffic patterns and lane closures on the parkway. A variety of notification methods would be used such as press releases, posting information on the George Washington Memorial Parkway website, appropriate construction signage, and use of vehicular messenger signs for both the parkway and the trail.

Cumulative Effects. Future projects such as the Humpback Bridge replacement and new entrance to Columbia Island Marina have the potential to have long-term, beneficial impacts on transportation. In the past, projects such as the road/parking improvement at Ronald Reagan Washington National Airport have improved traffic circulation, parking, and reduced delays. Implementation of Alternative B or Alternative C, when added to these past, present, and reasonably foreseeable future actions, would contribute beneficially to the long-term, cumulative effects on transportation because the actions would improve and sustain the bridge for use by motorists. The incre-

mental impact to the resource would be moderate and localized. Collectively, the beneficial cumulative effect on transportation is anticipated to be moderate and long-term.

During construction, there is the potential for a short-term, adverse cumulative impact if two or more roadway construction projects happen simultaneously on the parkway. For example, the Humpback Bridge replacement and new entrance to Columbia Island Marina on the parkway would require traffic control and road closures for construction. This construction project would have short-term impacts resulting from increased traffic congestion and changes in traffic patterns necessary to complete the construction. The bridge rehabilitation project would be expected to contribute a small incremental impact to overall traffic on the parkway; however, collectively, these projects have the potential to have moderate cumulative effects on traffic congestion on the parkway. The cumulative impact would be reduced to minor through proper planning, coordination, and scheduling. All of these projects are being managed by the Federal Highway Administration and the project schedules would be coordinated to minimize the cumulative impact to traffic on the parkway.

Conclusion. The bridge rehabilitation would have a minor, long-term, beneficial impact because the bridge would be repaired and sustained for future use by motorists, bicyclists, and pedestrians. With implementation of mitigation measures, a minor, short-term, adverse impact on traffic would occur during construction because of necessary road closures and detours. Proper scheduling and coordination, and public notification is necessary to minimize short-term cumulative impacts from numerous proposed construction projects on the parkway. A moderate, long-term, beneficial, cumulative impact would occur when added to other parkway transportation improvement projects.

Because there would be no major adverse impact to resources or values whose conservation are: (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the George Washington Memorial Parkway; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the park's general management plan or other relevant National Park Service planning document, there would be no impairment of the park's resources or values.

IMPACTS ON VISITOR USE AND EXPERIENCE

DEFINITION OF INTENSITY LEVELS

Analyses of the potential intensity of impacts on visitor use and experience were derived from the professional judgment of the park staff and their understanding of visitation patterns, combined with the assessment of what activities are currently available to visitors at the George Washington Memorial Parkway. The impacts on the visitor's ability to experience a full range of park resources were analyzed by examining resources and objectives presented in the park's significance statement. The potential change in visitor use and experience proposed by the alternatives was evaluated by identifying projected increases or decreases in recreational trail use (i.e., walking, jogging, and bicycling), automobile use, and other visitor uses, and determining whether or how these projected changes would affect the desired visitor experience and to what degree and for how long. The thresholds of change for the intensity of impacts on visitor use and experience are defined as follows:

- *negligible*: The impact would be a change that would not be perceptible or would be barely perceptible by most visitors.
- *minor*: The impact would change a few visitors' experiences, which would be noticeable, but would result in little distraction or improvements in the quality of the experience;
- *moderate*: The impact would change a large number of visitors' experiences and would result in a noticeable decrease or improvement in the quality of the experience. This would be indicated by a change in frustration level or inconvenience for a period.
- *major*: The impact has a substantial improvement in many visitors' experiences or a severe drop in the quality of many visitors' experiences, such as the addition or elimination of a recreational opportunity or a permanent change to an area. The impact would preclude future generations of some visitors from enjoying the park resources.

Duration: Short-term – Effects lasting for the duration of the construction activities (less than 1 year); Long-term – Effects lasting longer than the duration of the construction (longer than 1 year).

ALTERNATIVE A - NO-ACTION ALTERNATIVE

Under the No-Action Alternative, the National Park Service would continue management actions that would include minor repairs to the bridge. The Mount Vernon Trail would remain on the bridge shoulder and would not be realigned away from the roadway. The visitor experience would continue to be affected by the trail's close proximity to the roadway and lack of a protective barrier wall to separate northbound traffic. Currently, pedestrians, joggers, and bicyclists must be cautious of the northbound lane of the parkway because it is about 3 feet from the trail at the bridge. On most other parts of the trail, trail users have a much more enjoyable user experience because the trail is much farther from the road and, in some instances, users are protected from the vehicular traffic by physical barrier walls or grade separated trail bridges; thus, users do not have the same level of concern about potential conflicts with vehicles. The same concern is true for motorists traveling northbound on the parkway. Motorists have to be aware of the trail's close location to the roadway. Implementation of the No-Action Alternative would continue to have a minor, long-term, adverse impact on visitor use and experience because of the trail's close proximity to the roadway and lack of a protective structure.

Cumulative Effects. No past, present, and reasonably foreseeable future projects have been identified that would have long-term, adverse impacts to the visitor use and experience; thus no cumulative effects would occur.

Conclusion. Under the No-Action Alternative, the visitor use and experience would continue to be impacted by the trail's close proximity to the roadway. The impacts would be minor, long-term, and adverse. No cumulative effects would occur.

ALTERNATIVE B - BRIDGE REHABILITATION WITH EXTENSION FOR TRAIL REALIGNMENT (PREFERRED ALTERNATIVE)

Under Alternative B, the major project components include the replacement of the bridge decking, repair of guardrails and railings, and construction of a shoulder extension (effectively widening the bridge by 15 feet) to realign the Mount Vernon Trail. The shoulder extension and trail realignment would allow the National Park Service to spatially and physically separate trail users from northbound traffic on the George Washington Memorial Parkway. A stone parapet barrier wall would be constructed between the roadway and the trail. This spatial and physical separation would improve the visitor experience because visitors would feel an added sense of protection when using the trail at the bridge. The painting of the bridge beams and resetting of facestones would improve the aesthetics of the bridge as described in the visual resources impact analysis. These improvements to aesthetics would also improve the visitor experience by enhancing the aesthetics quality of this portion of the parkway. As a result, Alternative B would have a minor, long-term, beneficial impact on visitor use and experience.

Short-term impacts are interrelated to the short-term impacts described for transportation, cultural landscape, and visual resources that occur during construction activities. Visitors would experience an inconvenience from temporary trail detours and roadway lane closures. The impacts would be minimized through the implementation of a detailed traffic control plan and other work requirements. One of these requirements is that the trails would remain open at all times during the project. Visual impacts to the cultural landscape and aesthetics would occur during construction from equipment and temporary traffic barriers used for trail detours and lane closures. Construction signage and automated vehicular messenger signs would also detract from the setting. As a result, implementation of Alternative B would have a minor, short-term, impact on the visitor experience. Visitor use on the parkway trails is not expected to change as a result of the proposed alternative because the trail over the bridge represents such a small portion of the Mount Vernon Trail and the trail would remain open during the project. The slight inconvenience would not likely deter use of the trails. Overall, Alternative B would result in little distraction or improvements in the quality of the experience on the parkway. As a result, implementation of Alternative B would have a minor, short-term, adverse impact on the visitor experience.

Cumulative Effects. Future projects such as the Humpback Bridge replacement and new entrance to Columbia Island Marina have the potential to have beneficial impacts on the visitor experience. For instance, the Humpback Bridge replacement would allow for more enjoyable conditions for motorists and trail users because the proposed improvements would reduce visitor frustration levels associated with poor traffic flow and safety concerns in this area. Implementation of Alternative B, when added to these reasonably foreseeable future actions, would contribute beneficially to the cumulative effect on the visitor experience because the actions would realign the trail away from the roadway thus, giving visitors an added sense of protection and comfort. The incremental impact to the resource would be minor and localized. Collectively, the beneficial cumulative effect on the visitor experience is anticipated to be moderate.

Conclusion. Under Alternative B, visitors would experience an added sense of protection and comfort when using the trail resulting from the spatial and physical separation from the roadway. Painting and other improvements would improve aesthetics, which would also improve the visitor experience. The long-term impact would be minor and beneficial. The short-term impacts

would be minor and adverse during construction. A minor, long-term, beneficial cumulative effect would occur.

ALTERNATIVE C - BRIDGE REHABILITATION WITH NEW TRAIL BRIDGE

The impact to the visitor use and experience are similar to those described for Alternative B. The new trail bridge would allow the National Park Service to spatially and physically separate trail users from northbound traffic on the George Washington Memorial Parkway. This spatial and physical separation would improve the visitor experience because visitors would feel an added sense of protection and comfort when using the trail at the bridge. As a result, Alternative C would have a beneficial impact on visitor use and experience. The impact would be long-term and minor.

The painting of the bridge beams and resetting of facestones on the historic bridge would improve the aesthetics of the bridge as described in the visual resources impact analysis; however, under Alternative C, the placement of the new trail bridge would diminish the stylistic features of the historic bridge because the trail bridge would block views of the roadway bridge. These improvements to aesthetics would improve the visitor experience; however, the impacts would likely be offset by the impacts to the views of the historic structures.

Short-term impacts are interrelated to the short-term impacts to transportation, cultural landscape, and visual resources that occur during construction activities. Visitors would experience an inconvenience from temporary trail detours and roadway lane closures. The impacts would be minimized through the implementation of a detailed traffic control plan and other work requirements. One of these requirements is that the trails would remain open at all times during the project. Visual impacts to the cultural landscape and aesthetics would occur during construction from equipment and temporary construction barriers used for trail detours and lane closures. Construction signage and automated vehicular messenger signs would also detract from the setting. As a result, implementation of Alternative C would have a minor, short-term, adverse impact on the visitor experience.

Visitor use on the parkway trails is not expected to change as a result of the alternative because the trail over the bridge represents such a small portion of the Mount Vernon Trail and the trail would remain open during the project. The slight inconvenience would not likely deter use of the trails.

Cumulative Effects. Future projects such as the Humpback Bridge replacement and new entrance to Columbia Island Marina have the potential to have beneficial impacts on the visitor experience. For instance, the Humpback Bridge replacement would allow for more enjoyable conditions for motorists and trail users because the proposed improvements would reduce visitor frustration levels associated with poor traffic flow and safety concerns in this area. Implementation of Alternative C, when added to these reasonably foreseeable future actions, would contribute beneficially to the cumulative effect on the visitor experience because the actions would realign the trail away from the roadway thus, giving visitors an added sense of protection and comfort. The incremental impact to the resource would be minor and localized. Collectively, the beneficial cumulative effect on the visitor experience is anticipated to be moderate.

Conclusion. Under Alternative C, visitors would experience an added sense of protection and comfort when using the trail because of the spatial and physical separation from the roadway. The long-term impact would be minor and beneficial. The short-term impacts would be minor and adverse during construction. A minor, long-term, beneficial cumulative effect would occur.

CONSULTATION AND COORDINATION

Scoping is the effort to involve agencies and the general public in determining the scope of issues to be addressed in the environmental document. Among other tasks, scoping determines important issues; eliminates issues that are not important; allocates assignments among the interdisciplinary team members and/or other participating agencies; identifies related projects and associated documents; identifies other permits, surveys, consultations, etc., required by other agencies. Internal scoping at the park level creates a schedule that allows adequate time to prepare and distribute the environmental document for public review and comment before a final decision is made.

In accordance with Section 106 of the National Historic Preservation Act of 1966, the George Washington Memorial Parkway sent a letter to the Virginia Department of Historic Resources on January 10, 2003 to initiate consultation. The letter requested review and comment on the proposal to rehabilitate the bridge and transmitted an Assessment of Effect for the project. No response has been received from the Virginia Department of Historic Resources and the 30-day response period has ended. A copy of the letter is provided in Appendix B.

In accordance with Section 7 of the Endangered Species Act of 1973, the George Washington Memorial Parkway solicited comments from the U.S. Fish and Wildlife Service and Virginia Department of Conservation and Recreation as it relates to known occurrences of rare, threatened, and endangered species within the project area that could be adversely impacted by the proposed alternatives. The response letters are provided in Appendix A. Both agencies reported that they have no record of known occurrences of protected species at or near the project site or the proposed alternative would not likely affect nearby heritage resources. No further consultation pursuant to Section 7 is required.

This Environmental Assessment will be distributed for public and agency review with a comment for a period of at least 30 days. The National Park Service will consider the comments prior to determining the final decision document that will be sent to the National Capital Region Director for approval and signature.

LIST OF PREPARERS

U.S. DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE

Denver Service Center

12795 West Alameda Parkway
P.O. Box 25287
Denver, CO 80225-0287

Joe Helmkamp, Project Manager
Paul Wharry, Natural Resource Specialist
Steve Hoffman, Natural Resource Specialist
David Hayes, Cultural Resource Specialist
Karen Arey Johnson, Federal Highways Land Program Liaison

George Washington Memorial Parkway

Turkey Run Park
McLean, VA 22101

Jeff Pinkard, Park Ranger
Richard Foster, Facility Manager
Brent Steury, Natural Resources Program Manager
Matt Virta, Cultural Resource Specialist
Tim Buehner, Historical Architect

National Capital Region

1100 Ohio Drive, SW
Washington, DC 20242

Patrick Gregerson, NCR Compliance Officer
Dave Hammers, FHLP Coordinator

FEDERAL HIGHWAY ADMINISTRATION EASTERN FEDERAL LANDS HIGHWAY DIVISION

21400 Ridgetop Circle
Sterling, VA 20166

Tom Shifflet, Project Manager
Byron Betts, Project Engineer
Gary Jakovich, Project Engineer

GREENHORNE & O'MARA

9001 Edmonston Road
Greenbelt, MD 20770

John Wiser
Senior Project Manager
B.S. Biology
Eckerd College, 1991

Elizabeth Edelen Estes
Environmental Scientist
B.S., Marine Science
University of South Carolina, 1994

David Berg
Senior Historic Preservation Specialist
M.S. U.S. History
University of Maryland, 1990
B.A. U.S. History
Wheaton College, 1984

Joan Glynn
Senior Environmental Planner
B.A. Communications
University of Maryland, 1991

Steve Pomeroy
Environmental Scientist
M.S. Wildlife Management
University of Georgia
B.S. Zoology
University of Georgia

Julie A. Liptak
Senior Graphic Artist
B.S., Graphic Design
University of Cincinnati, 1976
Assoc. Civil Engineering
Cincinnati Technical College, 1984

HERITAGE PARTNERS

45 School Street
Boston, MA 02108

Catherine Barner
President

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APPENDIX A

Agency Coordination Letters

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401



August 12, 2003

Received

OCT 09 2003

DSC-PSD

Ms. Audrey F. Calhoun
U.S. Department of the Interior
National Park Service
George Washington Memorial Parkway
c/o Turkey Run Park
McLean, Virginia 22101

RE: *George Washington Memorial Parkway. Financial System Package Number: GWMP 44090, Rehabilitate Bridge over National Airport North Entrance (21P), Arlington County, VA*

Dear Ms. Calhoun:

This responds to your letter, received July 22, 2003, requesting information on the presence of species which are federally listed or proposed for listing as endangered or threatened within the vicinity of the above reference project area. We have reviewed the information you enclosed and are providing comments in accordance with Section 7 of the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*).

Except for occasional transient individuals, no federally proposed or listed endangered or threatened species are known to exist within the project impact area. Therefore, no Biological Assessment or further Section 7 Consultation with the U.S. Fish and Wildlife Service is required. Should project plans change, or if additional information on the distribution of listed or proposed species becomes available, this determination may be reconsidered.

An additional concern of the Service is wetlands protection. Federal and state partners of the Chesapeake Bay Program have adopted an interim goal of no overall net loss of the Basin's remaining wetlands, and the long term goal of increasing the quality and quantity of the Basin's wetlands resource base. Because of this policy and the functions and values wetlands perform, the Service recommends avoiding wetland impacts. All wetlands within the project area should be identified, and if construction in wetlands is proposed, the U.S. Army Corps of Engineers, Baltimore District, should be contacted for permit requirements. They can be reached at (410) 962-3670.

We appreciate the opportunity to provide information relative to fish and wildlife issues, and thank you for your interests in these resources. If you have any questions or need further assistance, please contact Kerry Linehan at (804) 693-6694.

Sincerely,

A handwritten signature in black ink that reads "Mary Ratnaswamy". The signature is fluid and cursive, with the first name "Mary" and last name "Ratnaswamy" clearly distinguishable.

Mary J. Ratnaswamy, Ph.D.

Program Supervisor, Threatened and Endangered Species

W. Tayloe Murphy, Jr.
Secretary of Natural
Resources



OCT 10 2003
DSC-PSD

Joseph H. Maroon
Director

COMMONWEALTH of VIRGINIA
DEPARTMENT OF CONSERVATION AND RECREATION

217 Governor Street
Richmond, Virginia 23219-2010
Telephone (804) 786-7951 FAX (804) 371-2674 TDD (804) 786-2121

July 28, 2003

Heather Germaine
National Park Service
George Washington Memorial Parkway
c/o Turkey Run Park
McLean, VA 22101

Re: Rehabilitate Bridge over National Airport North Entrance (21P), GWMP 44090

Dear Ms. Germaine:

The Department of Conservation and Recreation's Division of Natural Heritage (DCR) has searched its Biological and Conservation Data System (BCD) for occurrences of natural heritage resources from the area outlined on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

BCD documents the presence of natural heritage resources in the project area. However, due to the scope of the activity and the distance to the resources, we do not anticipate that this project will adversely impact these natural heritage resources.

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the Virginia Department of Conservation and Recreation (DCR), DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.

In addition, our files do not indicate the presence of any State Natural Area Preserves under DCR's jurisdiction in the project vicinity.

Any absence of data may indicate that the project area has not been surveyed, rather than confirm that the area lacks additional natural heritage resources. New and updated information is continually added to BCD. Please contact DCR for an update on this natural heritage information if a significant amount of time passes before it is utilized.

Should you have any questions or concerns, feel free to contact me at 804-692-0984. Thank you for the opportunity to comment on this project.

Sincerely,


Elizabeth Locklear
Locality Liaison

An Agency of the Natural Resources Secretariat

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APPENDIX B

**Section 106 Consultation Letter/
Assessment of Effect**

JAN 10 2003

H4217(GWMP)

Ms. Kathleen Kilpatrick
State Historic Preservation Officer
Virginia Department of Historic Resources
2801 Kensington Avenue
Richmond, Virginia 23221

ATTN: Ethel Eaton

Re: Rehabilitate George Washington Memorial Parkway Bridge Overpass at Reagan Washington National Airport North Entrance

Dear Ms. Kilpatrick:

In accordance with § 106 of the National Historic Preservation Act of 1966, as amended, and the Advisory Council on Historic Preservation's regulations, 36 CFR Part 800, and provisions set forth in the 1995 Servicewide Programmatic Agreement with the National Park Service (PA), we seek your review and comment on a proposal to rehabilitate and make safety improvements to the George Washington Memorial Parkway (GWMP) bridge overpass at the north entrance to Reagan Washington National Airport. The GWMP bridge requires major repairs due to its heavy usage and age and also needs slight widening to remove the Mount Vernon Trail from the road shoulder so that trail users may safely traverse the bridge. The bridge lies within the 1932 Mount Vernon Memorial Highway (MVMH) portion of the GWMP, though is not an original feature of the MVMH as the roadway in this section was relocated around the airport construction in the 1940s. The GWMP/MVMH are properties listed on the National Register of Historic Places.


The major components of the project (see attachments) to rehabilitate the GWMP bridge consist of repairing/replacing the bridge deck and constructing a shoulder extension on the east side (effectively widening the bridge by 15 feet) to carry the Mount Vernon Trail across the bridge more safely by spatially and physically separating trail users from traffic, i.e. moving the trail farther away from the traffic lanes and building a stone faced parapet barrier wall between the road and trail. Other major elements of this project include reconstructing the concrete approach slabs; removing and replacing the bridge railing; painting bridge beams; removing and replacing the failing concrete post-mounted wood guardrail with steel-backed timber guardrail; constructing concrete deadman at stone bridge parapet for guardrail connection; constructing a barrier curb along the bridge length with transitions in order to mitigate snagging potential of the existing stone parapet wall; and other minor rehabilitative tasks.

All repairs/replacements and safety improvements are intended to be undertaken in a manner so as to maintain the character of the existing bridge and elements of the GWMP/MVMH. The existing original stone facing of the bridge will be removed and re-used and reset in like manner to the original when refacing the bridge extension. Matching stonework will be installed where necessary on new construction. Other architectural features will be replaced in-kind or will be in character with Parkway design. Any trees removed for the undertaking will be appropriately replaced according to existing landscape plans. The construction of the original bridge, roadway, and entrance to the airport has disturbed the grounds, so there is little to no potential for disturbance to unknown archeological resources.

While the rehabilitation of and the safety improvements made to the GWMP bridge overpass at the north entrance to Reagan Washington National Airport will likely have some effect on the GWMP/MVMH, the project will be undertaken in a manner so as to maintain the historic character of the GWMP/MVMH in this locale. The new structure is also not expected to impact archeological resources, since original construction likely has disturbed the area. The National Park Service has thus determined that the rehabilitation of and the safety improvements made to the GWMP bridge will have no adverse effects on the National Register qualities of the GWMP/MVMH or other historic properties, nor is it likely to impact any unknown cultural resources. We hope that you concur with this determination and have provided "I Concur" and "Date" blocks below. Should you have any questions at all concerning this project, please do not hesitate to contact the GWMP Cultural Resource Manager Matthew R. Virta at 703-289-2535.

Thank you for your continued assistance.

Sincerely,



Audrey F. Calhoun
Superintendent

I Concur (Signature)

Date

(Printed Name)

Enclosures

cc:

Ms. Ethel Eaton w/
Virginia Department of Historic Resources
Division of Resource Review
2801 Kensington Avenue
Richmond, Virginia 23221

bcc:

GWMP Files w/
GWMP Project Files w/
IRRM Files w/o
IRRM-Compliance Coordinator w/o
IRRM-M. Virta w/o
MAINT-R. Foster w/o
NCR-Dave Hammers w/o

MVirta:703-289-2535;lcd:12/30/02:S:\GWMP Corres\IRRM\CRM\AirportBridgeVASHPOletter
Outgoing #3847



GEORGE WASHINGTON MEMORIAL PARKWAY

ASSESSMENT OF ACTION HAVING POTENTIAL EFFECT ON CULTURAL RESOURCES

GWMP 02-014

A. DESCRIPTION OF UNDERTAKING

1. Park/Site: George Washington Mem Pkwy (Mount Vernon Mem Hwy) (Include park district, if needed)
Project Title: Rehabilitate GWMP Bridge Overpass @ Reagan Wash. Nat'l Airport North Entrance
Project Compliance Number(s): # 2002-27 Project Location: Arlington Co., Virginia
(County, State)

2. Affected Resource(s): GWMP Roadway and Beveled Curbing North of Alexandria (NP-NALEX)
IDLCS# 17249; Landscape-Parkway North of Alexandria to Memorial Circle (NP-E) IDLCS# 45383

3. Work/Project Description (Include area of potential effect and effects on cultural resources; explain why work/project is needed): This project intends to rehabilitate the George Washington Memorial Parkway Overpass Bridge at the north entrance to Reagan Washington National Airport and make safety improvements for the Mount Vernon Trail which utilizes the shoulder of the roadway to traverse the bridge (see attachments). The overpass bridge, while not an original feature of the 1932 Mount Vernon Memorial Highway (MVMH), was constructed circa 1941, when the MVMH was realigned due to the development of National Airport and with its stone facing maintains stylistic elements of the original MVMH construction. The major components of the project consist of repairing/replacing the bridge deck and constructing a shoulder extension (effectively widening the bridge by 15 feet) to carry the Mount Vernon Trail across the bridge more safely by spatially and physically separating trail users from traffic, i.e. moving the trail farther away from the traffic lanes and building a stone faced parapet barrier wall between the road and trail. Other major elements of this project (see attachments) include:

- Reconstructing the concrete approach slabs;
- Removing and replacing the bridge railing;
- Painting bridge beams;
- Removing and replacing the failing concrete post-mounted wood guardrail with steel backed timber guardrail;
- Constructing concrete deadman at stone bridge parapet for guardrail connection;
- Constructing a barrier curb along the bridge length with transitions in order to mitigate snagging potential of the existing stone parapet wall;
- and other rehabilitative tasks.

All safety improvements and repairs/replacements intend to maintain the character of the existing bridge and/or the elements of the MVMH (replacements in-kind where necessary). The current stone facing of the bridge will be retained and re-used and reset in like manner to the original for refacing the bridge extension and matching stonework will be installed where necessary on new construction. Any trees removed for construction will be appropriately replaced according to existing landscape plans. While the construction of the original bridge, roadway, and entrance to the airport has disturbed the grounds, the GWMP Cultural Resource Manager must be contacted should an inadvertent discovery of archeological remains be made.

4. Has cultural resources survey work been completed for the area of potential effect?
____ No X Yes (if yes, source)

Cultural Landscape Report, Mount Vernon Memorial Highway, EDAW, Inc. n.d. (1986)

5. The proposed action will: (Check as many as apply)
- ☒ Destroy, remove, or alter features of a historic structure, setting, environment or cultural landscape
- ☒ Replace historic features in kind (re-use of original stone facing)
- ☒ Introduce nonhistoric features (inc. visual, audible, or atmospheric) into a historic setting, structure, environment or cultural landscape (additional matching stonework)
- ☐ Alter or remove features/elements of a historic setting or environment (inc. terrain)
- ☒ Potentially affect currently unidentified cultural resources (unlikely, area previously disturbed)
- ☐ Begin or contribute to deterioration of historic fabric, terrain, setting, landscape features, archeological or ethnographic resources
- ☐ Involve a land transaction, sale or lease
- ☐ Disturb, destroy, or make archeological resources inaccessible
- ☐ Other:
6. Measures to prevent or minimize loss or impairment of historic fabric, character, setting, integrity or data: **Original stone facing of bridge will be re-used and reset in like manner and new stone will match original stone facing. Other features (bridge rail, guardrails, etc.) will be replaced in-kind. Any trees removed for construction will be appropriately replaced according to existing landscape plans. The GWMP Cultural Resource Manager will be contacted should an inadvertent discovery of archeological remains be made.**
7. Supporting Study Data: (attach if feasible)
8. Attachments:
- ☐ Maps; ☐ Archeological Clearance, if applicable; ☒ Drawings; ☒ Specifications;
- ☒ Photographs; ☐ Scope of Work; ☒ Site Plan; ☐ List of Materials;
- ☐ Other: **Compliance Cover Sheet and Project Descriptions**
9. Prepared by: Matthew R. Virta Date: December 16, 2002
- Matthew R. Virta
GWMP Cultural Resource Manager
- Telephone: (703)-289-2535



GEORGE WASHINGTON MEMORIAL PARKWAY

ASSESSMENT OF ACTION HAVING POTENTIAL EFFECT ON CULTURAL RESOURCES

GWMP 02-014

- B. PARK 106 COORDINATOR REVIEW AND RECOMMENDATIONS (completed by the park Section 106 coordinator)
1. Review by additional specialists: The park is requesting review by specialists as indicated in check-off boxes in Part C.
 2. Assessment of Effect:
No Effect _____ No Adverse Effect X Adverse Effect _____
 3. Compliance requirements (The following is the park's assessment of Section 106 process needs and requirements for this undertaking):
 - [X] a. **STANDARD 36 CFR PART 800 CONSULTATION**
Consultation under 36 CFR Part 800 is needed subsequent to preparation and review by appropriate CRM advisers of this form.
 - [] b. **PROGRAMMATIC EXCLUSION**
The above action meets all conditions for a programmatic exclusion under Stipulation IV of the 1995 Servicewide PA for Section 106 compliance. APPLICABLE EXCLUSION:
Exclusion IV.B _____ [Specify 1-13 or IV.C addition to the list of exclusions.]
 - [] c. **PLAN-RELATED UNDERTAKING**
Consultation and review of the proposed undertaking were completed in the context of a plan review process, in accordance with the 1995 Servicewide PA and 36 CFR Part 800.
 - [] d. **UNDERTAKING RELATED TO ANOTHER AGREEMENT**
The proposed undertaking is covered for Section 106 purposes under another document such as a statewide agreement established in accord with 36 CFR Part 800.7 or counterpart regulations.
 - [X] e. **STIPULATIONS/CONDITIONS**
Following are listed any stipulations or conditions necessary to ensure that the assessment of effect above is consistent with 36 CFR Part 800 criteria of effect or to mitigate potential adverse effects.

SEE PART C.

Recommended by: Matthew R. Virta Date: December 16, 2002
Matthew R. Virta
Cultural Resource Manager, GWMP



GEORGE WASHINGTON MEMORIAL PARKWAY

ASSESSMENT OF ACTION HAVING POTENTIAL EFFECT ON CULTURAL RESOURCES

GWMP 02-014

C. REVIEWS BY CULTURAL RESOURCE SPECIALISTS

I have reviewed this proposal for conformity with requirements for the Section 106 process, with the 1995 Servicewide Programmatic Agreement (if applicable), and applicable parts of the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation, NPS Management Policies, and NPS-28. Below or attached is my best professional advice about this project and about issues relevant to the Section 106 process, including identification and evaluation of historic properties, assessment of the effects of this undertaking on historic properties, further review by the SHPO and Advisory Council, and mitigation and consultation on any potential adverse effects.

[X] HISTORICAL ARCHITECT:

Name: Tim Buehner  Date: December 24, 2002

Comments:

The removal, salvage, and reconstruction of this historic bridge's east side are regrettable and arguably an adverse effect upon the parkway's structural fabric; however when looking at the character of the parkway, this project does not have an adverse effect. Any adverse impact has been mitigated by documentation, the subsequent reconstruction of the east facade using the salvaged material, and the replacement of landscape vegetation to restore the setting.

This project will require consultation with the VA-SHPO to achieve concurrence with the determination of 'No Adverse Effect.'

Check if the project meets Secretary's Standards []

Assessment of Effect: [] No Effect; [X] No Adverse Effect; [] Adverse Effect; [] Programmatic Exclusion
Recommendations for conditions:

Project requires photographic documentation of the 1941 bridge's existing conditions. Drawings may also be required to assist the contractor in reconstructing the stone facade.

[X] OTHER ADVISERS: Title: Cultural Resource Manager (Archeologist)

Name: Matthew R. Virta  Date: December 16, 2002


Comments: Project will rehabilitate bridge in a manner so as to preserve historic character (re-use & match original materials; replacements in-kind). Little potential exists for effect on archeological resources.

Assessment of Effect: [] No Effect; [X] No Adverse Effect; [] Adverse Effect; [] Programmatic Exclusion
Recommendations for conditions or stipulations: Consultation with VA SHPO required. Project shall be executed as planned, adhering to approved scopes of work. Any deviations may result in need for additional Section 106 review. The GWMP Cultural Resource Manager must be contacted should an inadvertent discovery of archeological remains be made.

Acting

D. SUPERINTENDENT'S APPROVAL

The proposed work conforms to NPS Management Policies and NPS-28 and I approve the recommendations, stipulations or conditions noted in Section B of this form.

Name: Dr. Markham  Date: 1/8/03



United States Department of the Interior

NATIONAL PARK SERVICE
George Washington Memorial Parkway
c/o Turkey Run Park
McLean, Virginia 22101

IN REPLY REFER TO:

H4217 (GWMP)

JAN - 8 2003

Memorandum

To: Superintendent, George Washington Memorial Parkway

Through: Deputy Superintendent, George Washington Memorial Parkway *DM*
Chief Ranger, George Washington Memorial Parkway *D.S.*

From: Section 106 Coordinator, George Washington Memorial Parkway

Subject: Final Approval of Assessment of Effect Form (AEF)

Ref: AEF GWMP No. 02-014 Rehabilitate GWMP Overpass Bridge @ North Entrance
to Reagan Washington National Airport

The proposed work described in the attached referenced document conforms to NPS Management Policies and NPS-28. Therefore, I recommend approval, in accordance with the stipulations or conditions noted in Section C of the Assessment of Effect Form(s).

Please return the AEF package to me when signed, and a copy will be made for GWMP files.

Additionally, if appropriate, please attach the copy of the signed AEF package to the Categorical Exclusion Form completed for this project.

DM Marshall

Matthew R. Virta

Matthew R. Virta

1/7/03

Date

bcc:

GWMP-Files w/
GWMP-Project Files w/
IRRM-Files w/o
IRRM-Compliance Coordinator w/o
Maint.-R. Foster w/o
NCR-D. Hammers w/o

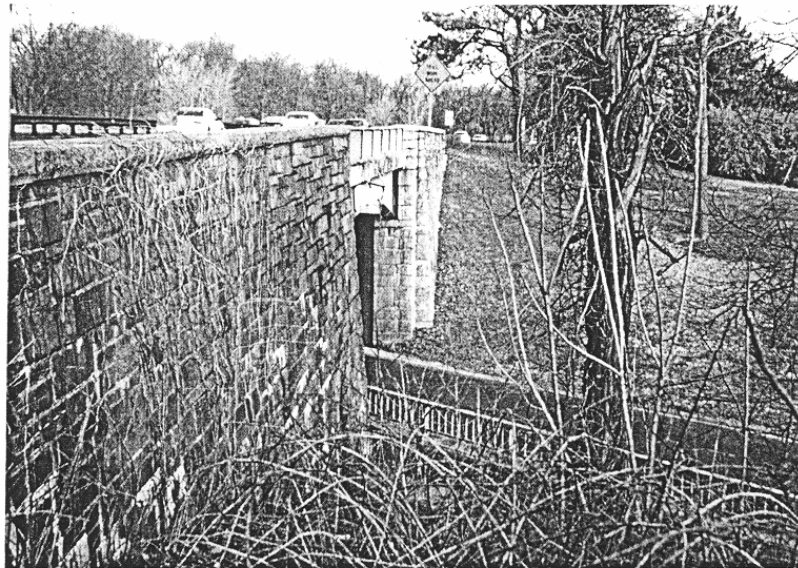
MVirta:703-289-2535:lcd:12/30/02:S:\GWMP Corres\IRRM\CRM\XXX-02-014 AirportBridge

Outgoing #3848

GWMP Overpass Bridge at North Entrance to Reagan Washington National Airport
Existing Conditions



East Face of Bridge (looking west)

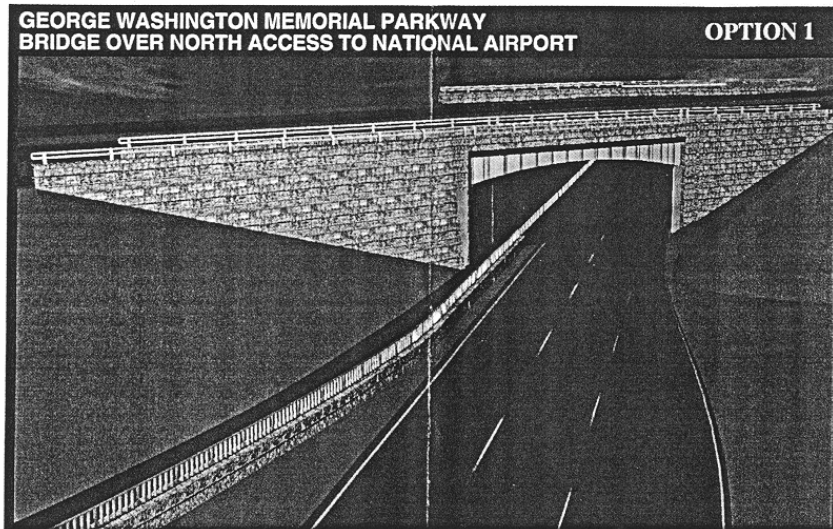


East Face of Bridge (looking north)

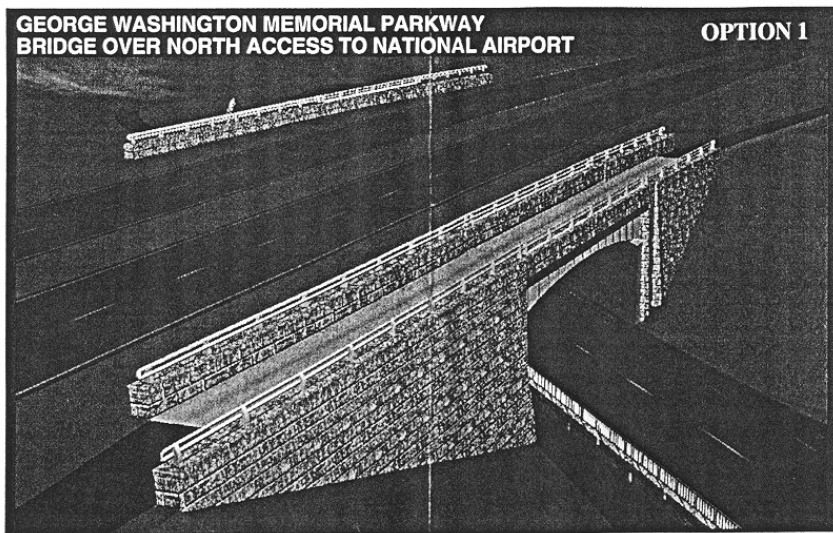


Mount Vernon Trail on Northbound GWMP Road Shoulder Over Bridge (looking north)
East Face of Bridge Visible

GWMP Overpass Bridge at North Entrance to Reagan Washington National Airport
Simulation of Proposed Changes



East Face of Bridge (looking west)
Note: Bridge Rail Style to Differ (see drawings)



East Face of Bridge (looking northwest) Showing Separation of Mount Vernon Trail
From GWMP Road Shoulder
Note: Bridge Rail Style to Differ (see drawings)